The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

VOL. 23. No. 26-A TULSA, OKLAHOMA, NOVEMBER 20, 1924

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Big Increase in Oklahoma Production

Average daily production in United States week ended Nov. 15, 1,939,246 bbls. Loss from previous week, 5,876 bbls.

Production of State 524,000 Bbls. Daily End of Last Week. Decreases Elsewhere Result in Net Decline

Highest daily average estimated production this year, week ended Aug. 23, 2,057,319 bbls. Lowest, January 12, 1,871,143 bbls.

By Andrew M. Rowley

An increase in production of crude petroleum in the Mid-Continent area of the United States, due chiefly to a gain of more than 12,000 barrels a day in Oklahoma, was offset last week by declines in other fields of the country, principally in the Rocky Mountain area and California, resulting in a net decline in production, of all fields averaging 5,876 barrels a day. Every field outside the Mid-Continent showed a loss in output last week, while in the Mid-Continent, Arkansas recorded a decline of nearly 4,000 barrels a day and smaller decreases were shown in Kansas and East Central Texas. The only price change made during the week was an increase of 25 cents in the posted quotation for Bellevue crude.

Several pools in Oklahoma, notably Tonkawa, Burbank, Cromwell and Papoose, contributed to the increase in production in that State. At the close of the week, the estimated production of Oklahoma was 524,000 barrels a day with the deep sand area of Tonkawa aiding materially in this output. On Monday of this week the production of the 44 wells in the deep sand at Tonkawa was 82,694 barrels. The peak of this deep sand area so far was reached September 13 with a production on that date of 88,607 barrels. The Papoose Pool showed an increase in average production during the week of 3,400 barrels daily while Cromwell showed a substantial gain.

The slump in production of the Burbank Field in Oklahoma was halted during the week and that field held the limelight for a time when the Phillips Petroleum Company brought in a well on a lease purchased at the sale of Osage leases last June, which is reported to have made 840 barrels the first hour, or at the rate of more than 20,000 barrels a day. The output for the first 24 hours, however, was 3,800 barrels. Deeper drilling of producing wells in the Tonkawa Field aided greatly in increasing production there. The west side of the Cromwell Pool looks better now since the Prairie Oil & Gas Company's four tests along the east line of its lease came in with an aggregate production of 4,000 barrels daily while still drilling.

While chief interest in the crude situation naturally centers in Oklahoma because of mounting production in that State and the possibilities of present pools, other sections of the country are holding local attention at least. The wildcat well of the Big Indian Oil & Development Company in Cooke County, Texas, about 12 miles northeast of Gainesville made two additional flows last Saturday, placing considerable oil in earthern storage. The well then settled back to normalcy which is without any production. Drillers at the well insist the wildcat will make a commercial producer. In the South Vernon Field in North Texas Ray & Massie completed a well which made 100 barrels an hour initially. In Louisiana, the Cotton Valley Field held greatest interest and registered another gain in production. In the Gulf Coast area, the Mutual Oil Company completed a well making 4,300 barrels while all the pools in the area entered into the completion column. A well at Pierce Junction started at the rate of 500 barrels a day. The completion of Henne, Winch and Fariss in Jim Hogg County, the most southerly producer in the United States, is still making 1,100 barrels daily.

An interesting development in California during the week was the bringing in by the Associated Oil Company of its No. 1 Wanka in the Rosecrans Field for a production of 901 barrels of 32.3 gravity oil. The well was a surprise from the standpoint of the quantity and quality of the oil, the output being significant as other wells in the district are producing oil testing between 37 and 41 degrees gravity.

Tennessee, which very seldom breaks into crude production news, came to the front early this week with a well estimated as making 1,000 barrels at 433 feet. It is Dafoe and associates' No. 2 Ham Lynn, located at Tinsley's Bottom, Clay County, the production coming from 105 feet below the Pencil Cave in the Modoc sand.

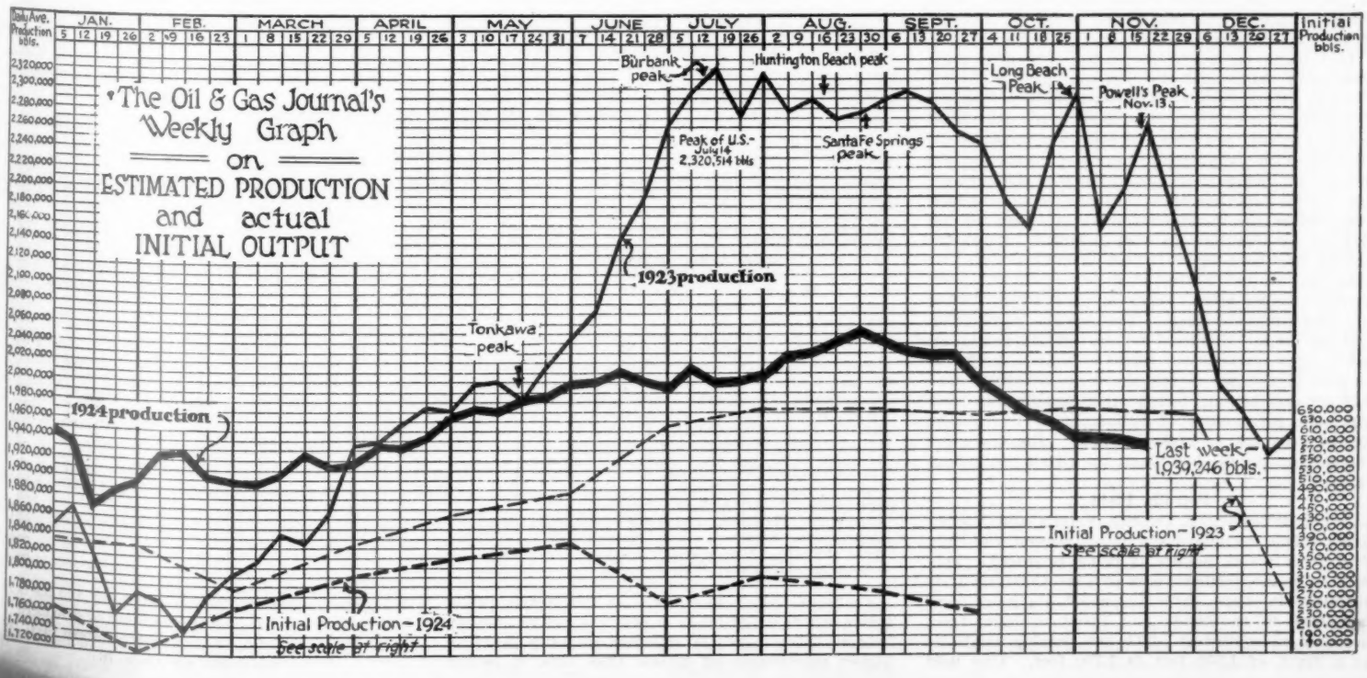
Despite the large production of Oklahoma and the probability there will not be any great decline in its output for some time, the crude oil situation in the Mid-Continent seems to continue to tighten with more talk than ever of probable advances in prices within the near future. Shipments of crude from this area are increasing, which is a hopeful sign, and consumption in various parts of the country is establishing new high records. At the same time crude is being put in storage in the country as a whole and nothing has occurred to change the opinion expressed so frequently in these columns that crude oil producers, refiners and the entire industry will be much better off in the future if crude oil prices are not advanced prematurely.

PRODUCTION IN THE UNITED STATES

Estimated daily average production in the oil fields of the United States for the week ended November 15, and a comparison with previous week follows:

	Nov. 15	Nov 8
Oklahoma—Northern Fields:		
Tonkawa	97,620	94,250
Burbank	72,895	70,245
Other Osage Fields	41,050	41,320
Cushing and Shamrock	23,650	23,610
Bristow and Eastern Bristow	41,130	42,460
Cromwell	48,220	45,160
Papoose	21,240	17,800
Northern Miscellaneous	100,610	99,300
Southern Fields	68,290	68,275
Total Oklahoma	514,705	502,420
North Louisiana	60,171	58,832
Arkansas—		
El Dorado and Calion	11,410	11,605
Smackover Light	31,540	33,710
Smackover Heavy	70,795	72,265
Stephens and Nevada	3,565	3,575
Total Arkansas	117,310	121,155
North Central Texas	125,260	124,855
Powell	70,200	72,270
Mexia, Currie, Richland, etc.	52,800	53,100
Kansas	88,950	89,100
Total Mid-Continent Area	1,029,396	1,021,732
Gulf Coast	85,425	86,660
Southwest Texas	40,935	41,435
Eastern	106,450	106,950
Rocky Mountain Area	90,540	97,645
California—		
Santa Fe Springs	52,000	53,000
Long Beach	130,000	132,000
Huntington Beach	39,000	38,500
Torrance	46,000	48,000
Dominguez	32,000	32,000
Remainder of State	287,500	287,200
Total California	586,500	590,700
Total United States	1,939,246	1,945,122

DECREASE, 5,876 BARRELS



Helium Sources and Extraction Process

Chemical Engineer in Charge of Naval Purification Plant Shows Percentage of Content in Natural Gas of American Fields

By R. R. Bottoms
Chemical Engineer, Superintendent of Helium Purification, Naval Air Station, Lakehurst, N. J.

HOW HELIUM IS OBTAINED

The story of helium as it exists in the United States is here told by R. R. Bottoms, chemical enineer, superintendent of Helium Purification Plant, Naval Air Station, Lakehurst, N. J. Mr. Bottoms also shows the nature of the natural gas of Canada and in the old world in respect to its helium content which is smaller than that of the United States. The tables and text of Mr. Bottoms' article show exactly where helium is found in the natural gas of the United States and the percentage of helium contained in samples analyzed, the total number of such analyses that have been made to date being about 1,500.

The spectrum of helium was discovered in the chromosphere of the sun during a solar eclipse in 1868 independently by American, British and French observers. The element, of course, was not known at that time and, for many years, it was mere scientific conjecture that the new yellow line observed in the solar spectrum belonged to an unknown element which scientists believed existed only in the sun. And since the classical Greek name for the sun is Helios, the name Helium was suggested for the new element. In 1892 Rayleigh and Ramsey, while making a spectroscopic examination of a sample of gas extracted from Uraninite, observed the same bright yellow line that was discovered during the solar eclipse of 1868. These brilliant investigators immediately realized that they had finally discovered and isolated the hypothetical solar element of Janssen and Lockyear, and immediately set about to investigate its physical and chemical properties.

Since this epoch-making accidental discovery helium has been found widely distributed in nature, but curiously enough as it occurs in nature it is too largely diluted to be generally available for commercial use. Helium is found in the gases evolved from many European thermal springs, in volcanic and mine gases, in natural gas and in the gases extracted from radium bearing minerals. In all of these sources, except the last named, the helium content ranges from a mere trace to about 2 to 3 per cent.

In the gases extracted from radium bearing minerals, notably from pitchblend, the helium content often reaches 20 to 30 per cent of the gases evolved. The total volume of helium that can be obtained from such minerals ranges from a few thousandths of a cubic centimeter to almost 10 liters per kilogram of mineral, but these minerals are too rare and expensive to be worked commercially. Helium occurs to some extent also in the atmosphere but in such small quantities—one part in 250,000 parts of air—as to make its commercial extraction unprofitable.

Natural Gas Chief Source

The principal source of helium at the present time available for large scale extraction is the natural gas deposits of the United States and Canada. This source of helium was discovered by Dr. C. N. Cady of the University of Kansas.

In Canada there are two fields that give some promise of commercial exploitation; the Bow Island Field in Alberta, and a pool near Hamilton, Ontario. The natural gases from these fields carry about 0.30 per cent helium and were the first to be experimented with, with the purpose in view of extracting the helium in commercial quantities for aeronautical use. These experiments were conducted during 1916 and 1917 by the Canadian Bureau of Mines for the British Air Service. It was intended to use the helium for the fleet of British dirigibles.

In the United States there are four principal helium bearing areas. They are the Texas region, the Mid-Continent region, the Appalachian region and the Rocky Mountain region. While nearly all natural gas carries small traces of helium, the greater part of the gas in the above areas carries over 0.25 per cent helium; nearly all natural gases carrying high percentages of helium occur at shallow depths, from 200 to 2,000 feet deep. The shallower the gas bearing sand is found the richer the helium content.

Petrolia Field

In the Texas region are the Petrolia and Nocona fields. The Petrolia Field is at present the only field from which helium is being produced. This field is in the northern part of Clay County. It is ellipitical in shape, extending about 3½ miles from northeast to southwest and about 4 miles from nortwest to southwest. The gas bearing sands lie at a depth of 1,550 feet to 1,750 feet. This field has been producing gas since 1907 and it has been estimated that the field has produced to date over 125,000,000,000 cubic feet of natural gas, and repeated analyses have shown that the gas carries over 0.90 per cent helium. There has been produced by this field alone 1,000,000,000 cubic feet of helium. The greater part of this helium, of course, has gone to waste, the Government helium plant having recovered only about 14,000,000 cubic feet, or a little over 1 per cent of the total produced by the field. The general quality of the gas from this field is shown in Table 1.

The Petrolia Field is rapidly becoming exhausted and will probably not produce gas in sufficient quantity to be of commercial importance for many years longer.

Nocona Field

The Nocona Field is a new field which has only recently been drilled for gas. The total supply of gas in this field is thought to be even greater than that supplied by the Petrolia Field. The gas analyzes about 1.2 per cent helium. This field is about 75 miles north of Fort Worth in Cooke County and is to be connected up with the Government pipe line which carries the Petrolia gas.

(The analysis of the samples of natural gas indicated in the following table shows in the last column three locations in which the helium content is in excess of 1.5 per cent):

ANALYSIS SHOWING HELIUM CONTENT

Place—	Composition of Gases						
	CH_4	C_2H_6	C_2H_4 etc.	CO_2	O_2	N_2	He
Dexter, Cowley County, Kansas	14.85	.41	...	.00	.20	82.70	1.84
Eureka, Greenwood County, Kansas	51.80	.00	.00	.20	.10	46.40	1.50
Fredonia, Wilson County, Kansas	82.25	.00	.12	.61	trace	16.40	.616
Elmdale, Chase County, Kansas	78.60	7.71	.55	.15	.30	12.13	.56
Moline, Elk County, Kansas	74.10	.00	...	.54	.00	24.85	.51
Lawrence, Douglas County, Kansas	81.40	.00	.00	.92	trace	17.22	.46
Olathe, Johnson County, Kansas	84.40	.00	.10	.00	trace	15.10	.40
Endora, Douglas County, Kansas	88.60	.00	.00	.62	.31	10.20	.27
Augusta, Butler County, Kansas	79.10	7.44	.77	.00	.00	12.44	.25
Iola, Allen County, Kansas	94.50	.00	.00	.00	.23	5.08	.183
Allen and Neosho County, Kansas	94.30	.75	.00	1.94	.24	2.60	.17
Arkansas City, Cowley County, Kansas	81.10	11.95	.10	.10	.20	6.39	1.59
Caney, Montgomery County, Kansas	92.40	.00	.10	.81	.15	6.43	.08
Marion, Grant County, Indiana	77.40	14.18	.86	.73	.00	6.66	.167
Morgantown, Monongalia County, West Virginia	88.10	7.37	.65	.24	.00	3.60	.09
Pierre, Hughes County, South Dakota	86.50	.00	.29	1.35	.00	11.86	trace
Petrolia Field, Clay County, Texas	50.60	10.9	...	.10	.00	37.45	.945
Billings Field, Nobel County, Oklahoma	30.33	26.69	.00	.49	.00	42.12	.39
Morrison Field, Pawnee County, Oklahoma	57.89	16.89	.00	.24	.00	24.70	.27
Vinton County Field, Ohio	77.3	7.6	...	.00	.00	14.67	.43
Vinton County Field, Ohio	86.10	4.60	...	.00	.00	9.26	.40
Bow Island Field, Alberta, Canada	.....	....	...	...	...	....	.30
Nienganme, Hamburg, Germany	.....	....	...	...	...	....	.014
Pechelbronn, Alsace	.....	....	...	...	...	....	.88
Wels, Austria (Scharf well)	.....	....	...	...	...	....	.0099
Kissarmas, Hungary, Well 2	.....	....	...	...	...	....	.0014

There are other gas fields in the North Texas region which carry up to .5 per cent helium, but as long as there is gas in sufficient quantity carrying higher percentages of helium than this, it is not likely that any gases with a helium content much below 1 per cent will be worked for the commercial extraction of helium.

Mid-Continent Region

The great Mid-Continent gas and oil region of the United States contains probably the most widely distributed and richest helium bearing gas found anywhere. The gas pools in this region unfortunately are not very productive. The wells are shallow (from 150 to 1,500 feet for the most part) and the rock pressure is low. The important fields in this region are:

1. The El Dorado Field, in the central part of Butler County, Kansas. The output of gas from this field is obtained from sands which occur at the 900 to 1,500-foot levels. The gas analyzes about 1.1 per cent helium with an average of about 40 per cent nitrogen. The rock pressure in this field fell from about 460 pounds per square inch in 1915 to about 60 pounds in 1920. Its maximum production was about 20,000,000 cubic feet per day and the field is considered to be about three-fourths exhausted.

R. R. Bottoms

2. Another field in the southwestern part of

(Continued on Page 76)

Fuel Oil and Coal Resources of the U.S.

Comparison of Markets and Supplies, Differentiating Industries and Uses Where Competition Between Them Is Possible

By Charles E. Bowles

How successfully fuel oil may be able to compete with coal is essentially not a question of the supply of coal in the United States—or in the world.

And the price of coal is not based upon any uncertainty as to the abundance of our future supply—for we have been endowed far beyond all possible needs, for centuries to come.

Of the four basic power resources of the world—coal, oil and gas, water power and wood—we can ignore wood as a negligible factor from the present time on, regardless of the service it rendered in the past.

In North America about 20 per cent of the potential water power has been developed—in South America, about 1 per cent—in Europe slightly less than 20 per cent—in Asia, less than 2 per cent—in Africa, a wholly neligible amount—in Australia, about 1 per cent.

The world has utilized power in rapidly increasing amounts for about a century. And even though the use of water power has increased rapidly, coal has been our outstanding power resource, until the last 20 years when gasoline began to be an important power factor, especially in transportation.

And now, fuel oil is coming in to divide the field another way—coal, water power, gasoline and fuel oil. Each has outstanding advantages along certain lines—while in certain other lines more or less keen competition is certain to develop, based not so much probably upon cost, as upon satisfaction from superior service.

Power Resources

Before attempting to analyze how far fuel oil might go in the replacement of coal, let us see something as to how much coal the United States has—likewise the world—for the question of the possession and development of power resources is a vital international proposition—whether the resource be coal or oil.

Table 1 uses for the item, "Estimated Reserves," the figures compiled by the United States Geological Survey.

Mining engineers are able to compute, with reasonable accuracy, the total amount of coal, iron, ore, copper, zinc and other minerals, in place, in mines, and from this viewpoint the estimates of reserves of coal in the different countries of the world are used.

Entirely aside from the "question of probable error in the estimates of countries outside the United States, it is obvious that if there is one-tenth as much coal, in the other countries, as the estimates indicate, then each country has ample supplies for centuries to come.

Turning to the United States about whose coal resources we should be reasonably well informed, we find that the estimate stands at 3,500,000,000,000 tons.

For the last several years we have mined an average of about 500,000,000 tons a year.

At this rate of consumption our estimated reserves are ample for the next 6,000 years.

It would certainly be inexcusable incompetence if the best coal mining engineers of the United States, with the experience of our having produced billions of tons of coal, should estimate our future reserves at ten times as much as we actually have.

And yet, if there is today in the ground in the United States only one-tenth as much coal as they have estimated, then the supply is ample, at the present rate of use, for the next 600 years.

With this background of absolute certainty of the sufficiency of our coal supply—for centuries to come—let us turn to Table 2, showing the tons of coal mined in the United States and the barrels of crude oil produced.

TABLE 1—Years' Supply of Coal Based on Estimated Reserves Compared With Coal Mined in 1923

Country	Estimated Reserves	Mined in 1923	Years' Supply
United States and Alaska	3,500,000,000,000	545,000,000	6,000
Canada	1,361,000,000,000	18,000,000	75,000
Mexico and Central America	10,000,000,000	... ...	. ...
South America	130,000,000,000	2,000,000	65,000
Europe	522,000,000,000	610,000,000	850
Asia	1,900,000,000,000	70,000,000	27,000
Africa	62,000,000,000	11,000,000	5.600
Austrasia	200,000,000,000	14,000,000	14,000
Total	**7,685,000,000,000**	**1,270,000,000**	**6,000**
World Production in 1922		1,208,000,000 Tons	
World Production in 1921		1,133,000,000 Tons	
World Production in 1920		1,318,000,000 Tons	

Coal has been mined in Pennsylvania for years, and with the background of this experience it is estimated that there is yet over 100,000,000,000 tons of bituminous coal and 16,000,000,000 tons of anthracite coal in the ground.

As the entire United States is consuming 500,000,000,000 tons a year, the State of Pennsylvania could supply the United States, on the present basis, for more than 200 years.

It is estimated that about 150,000,000,000 tons of bituminous coal is yet unmined in West Virginia—enough to supply the United States, at the present rate of consumption, for 300 years.

Remarkable Balance

In company with the four great power resource areas of the United States—East, Mid-Continent, Rocky Mountain and Pacific Coast—the great outstanding fact is that the shortage of either resource in each area is supplied by the surplus of the other.

East of the Mississippi, in 1923, we produced 491,000,000 tons of coal and 40,000,000 barrels of oil.

In the Mid-Continent we produced 21,000,000 tons of coal and 381,000,000 barrels of oil.

In the Rocky Mountain area we produced 29,000,000 tons of coal and 47,000,000 barrels of oil.

On the Pacific Coast we produced less than 3,000,000 tons of coal and over 262,000,000 barrels of oil.

Taking the United States as a whole we produced 545,000,000 tons of coal in 1923, and 732,000,000 barrels of oil.

TABLE 2—Coal Mined, in Tons—and Crude Oil Produced in Barrels—in 1923.

State	Coal Mined	Oil Produced
East—		
Pennsylvania	160,000,000	7,609,000
West Virginia	100,000,000	6,358,000
Illinois	84,000,000	8,707,000
Kentucky	41,000,000	8,069,000
Ohio	40,000,000	7,085,000
Indiana	27,000,000	1,043,000
Tennessee	6,100,000	8,000
Alabama	18,200,000	. ...
Maryland	2,700,000	. ...
Michigan	1,200,000	. ...
Virginia	11,000,000	. ...
New York	.. ..	1,250,000
	491,200,000	**40,129,000**
Mid-Continent—		
Kansas	4,500,000	28,250,000
Oklahoma	3,550,000	160,929,000
Texas	1,100,000	131,023,000
Arkansas	1,400,000	36,610,000
Louisiana	. ...	24,919,000
Iowa	6,500,000	.. ..
Missouri	3,800,000	.. ..
North Dakota	950,000	.. ..
	21,800,000	**381,731,000**
Rocky Mountain—		
Wyoming	8,300,000	44,785,000
Colorado	10,300,000	86,000
Montana	3,300,000	2,782,000
New Mexico	2,700,000	. ...
Utah	4,600,000	. ...
	29,200,000	**47,653,000**
Pacific Coast—		
California	. ...	262,876,000
Washington	2,950,000	. ...
	2,950,000	**262,876,000**
All Other	250,000	18,000
Total	**545,400,000**	**732,407,000**

Power Value Varies

In replacing coal with fuel oil the "power value" of both coal and fuel oil varies greatly, not only with the varying qualities of coal and fuel oil from a purely heat producing standpoint, but more particularly with the greater "mobility" of oil, as well as the greater satisfaction from its use.

The discussion of these factors has been made the subject matter of a number of technical books on coal, fuel oil, prime movers, etc., and therefore has no place in this article. However, for the sake of helping us to think of fuel oil in terms of coal, let's agree that, on the average, half of crude oil is fuel oil and that three barrels of fuel oil is the "power equivalent" of a ton of coal.

In this connection let us bear in mind that in both the coal business and the oil business, the markets for each are constantly reacting to two powerful factors; local conditions and national conditions. The amount of either coal or oil above ground in any area, the general condition of crops, labor, banking, general business conditions, etc., may swing either of the industries sharply "out of line" with the condition of the industry as a whole—but in the aggregate, when the industry is viewed from a national standpoint, most of these sharp angles, due to local conditions, are ironed out and the "humps and slumps" largely disappear.

Our thoughts are constantly swinging back and forth from seeing our particular industry from a national viewpoint to looking at it from a purely local standpoint—with nearly all of our attention on the local situation—and yet we must look at the coal business and the oil business from the national viewpoint if we are to get the right background for measuring the vastness of these great power resource industries and their relation to our industrial fabric.

Four Power Areas

On the basis then of crude oil averaging 50 per cent fuel oil and 3 barrels of fuel oil equaling a ton of coal, let us see how these four power areas compare.

The East would have 491,000,000 tons of coal and fuel oil in the equivalent of 7,000,000 tons—a ratio of 70 to 1 in favor of coal.

The Mid-Continent would have 21,000,000 tons of coal and fuel oil in the equivalent of 63,000,000 tons—a ratio of 3 to 1 in favor of fuel oil.

The Rocky Mountain area would have 29,000,000

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at a depth of 1,550 feet to 1,750 feet. This field higher percentages of helium than this, it is not

(Continued on Page 1

Group 3 Prices Continue to Advance

Export Demand and Domestic Buying Affects Motor Fuels. Natural Gasolines, Blends and Fuel Oils Higher. Lubricants Firm, Wax Scarce

By Ralph T. Baker

Continued strength was apparent in the Group 3 (Oklahoma) refined market during the past week, with the higher gravity gasolines, natural gasolines and fuel oil arousing the most interest. Gasolines generally advanced from ⅛ to ¼-cent in price while fuel oil brought about 5 cents more than it did during the previous week. Blends participated in the advance of gasolines, while kerosene and straw distillate showed no pronounced strength and gas oil made only a slight improvement.

Although several refiners had advanced their quotations to 8 cents, practically all of the trading in 58-60, 437 end point U. S. Motor gasoline was carried on at a price of 7¾ cents. This figure was the accepted price to the trade direct, marketers being able to shade the quotation slightly in some cases, and refiners in extremely isolated cases being able to command a slightly better price. The general tone throughout the week was firm, however, with most refiners unable to promise immediate shipment on any large orders.

Two conflicting elements as market factors became even more apparent during the past week. On the one hand was the report of low refinery stocks in the Mid-Continent coupled with an impending crude advance and the probable advance in gasoline tank wagon prices. On the other hand was the knowledge that winter was approaching and jobbers had been buying freely, and that any widespread snowfall or occurrence of bad weather would put motoring at an end for several months in a large number of the States which have contributed largely to the heavy consumption which had been reflected in the advancing Mid-Continent refined market prices. These two conflicting sentiments were pointed out in a previous issue of The Oil and Gas Journal and are mentioned here only because of the increasing consideration given them by most of the refiners and marketers in Group 3 during the past week.

Big Gasoline Consumption

The continued heavy consumption of motor fuel in practically all areas supplied by Group 3 refiners gave weight to the more optimistic side of the question during the week with the result that more than one large refiner purchased gasoline on the open market to supply his service stations or customers. A comparison of figures on gasoline in storage at this time and that in storage in November, 1923, also is interesting. Reports from Cosden & Co., the largest Mid-Continent refiner, indicate that this concern now has less than 6,000,000 gallons of all gasolines in storage. It will be remembered that during the corresponding time in 1923, this concern's gasoline storage was variously estimated from 40,000,000 to 50,000,000 gallons of gasoline. Other prominent Group 3 refiners are also reported with relatively small amounts of gasoline in storage.

The development of a sustained demand for the 64-66, 375 end point gasoline for export might be classed as the outstanding cause for the advance in gasolines during the week. North Texas refiners contributed largely to the improved situation in Group 3 by depleting their stocks of the export material to satisfy the recent demand from Canadian purchasers, who had been furnished with 64-66 gravity 390-400 end point gasoline previously. The scarcity of the 390-400 end point material and the development of a big demand from Canadian purchasers made it necessary for 375 end point product to be shipped, thus leaving many refiners unprepared for the export business which developed.

REFINED MARKET BAROMETER

Another week of generally firm refinery prices was experienced in practically every section east of the Rocky Mountains. Approach of colder weather did not cut down motoring appreciably and demand for gasoline from both domestic and foreign sources did much to stimulate prices for many grades. Crude and tank wagon prices remained stationary except for a 25-cent advance in Bellevue oil and a 2-cent cut in tank wagon and service station prices in Denver, Colo. Gasolines generally were bringing steady or higher prices in all sections except California. Fuel oil was universally strong, with Diesel engine fuel showing particular strength on the Atlantic Seaboard. Engine distillate was weaker in California, however. Gas oil was generally firm while distillates and kerosenes were spotted with a weak tendency. Natural gasolines and blends were showing increased demand and advancing prices. Lubricants generally firm with steam refined cylinder stocks and bright stocks heading list. Wax scarce and high.

Mid-Continent—Demand for 64-66 375 export gasoline causes higher prices for all straight run products, particularly higher gravities. Naphthas and other grades participate in general advance. Many refiners sold up. Natural gasolines scarce and high with increased interest being displayed in blends, particularly the higher gravity products. Heavy domestic buying, small storage and export orders have done much to stimulate gasoline market. Fuel oil shows additional strength, with Kansas and North Texas reporting greatest demand. Group 3 prices advance in line with other areas. Gas oil unchanged in price with slightly firmer tone; distillates weak in spots with no great demand. Kerosene weak except in Arkansas where it is firm and in North Texas where it is fairly active. Neutrals unchanged in price, with slightly weaker tendency. Steam refined cylinder stocks stronger with bright stocks showing firm tone. Wax in good demand from exporters with many refiners sold ahead.

Chicago—Industrial revival spreading to petroleum industry. Cold weather cuts down gasoline consumption. Crude and tank wagon advances anticipated. Jobbers fill tanks. Demand for higher gravity gasolines exceptionally good. Blends also in great demand. Kerosene sluggish. Distillates moving slowly. Fuel oil finding competition in low coal prices. Gas oil unchanged. Zero oils lead market for lubricants.

Atlantic Seaboard—Gasoline prices stiffening. Weather favors motoring. Further advances in prices anticipated. Kerosene prices soft. Furnace oil sluggish. Gas oil firm but inactive. Heavy sales of Diesel oil to domestic and foreign buyers feature of fuel oil market. Heavy fuel oil stationary. Lubricating oils remain steady, with inquiries numerous. Wax is firm. Exporters active.

Pennsylvania—Refined products showing more strength. Crude oil advance anticipated. Producers hold oil for increase. Gasolines strong. Demand large. Kerosene unchanged. Fuel oil stronger with good demand. Cylinder stocks show more strength. Neutrals also stronger. Wax scarce.

Gulf Coast—Pale and red oil prices unchanged following recent advance. Fuel oil prices higher. Gas oil prices unchanged.

California—Market quieter with gasoline consumption showing decrease. Refiners and marketers watching trend in crude oil and refined products. Prices unchanged during week except decrease in price of engine distillate. Fuel oil strong.

The result of an exceptional demand for 64-66, 375 end point export gasoline was shown in the inevitable rush for natural gasolines on the part of the refiners and a big improvement in the higher gravity blends. Naphthas also were given a noticeable advance due to an increased demand and their scarcity. Following the reports that the exhaustion of the supply of export gasoline, purchasers for consumption in northern States turned their attention to 60-62, 400 end point grade with the result that it was given a good boost also.

Demand for Blends

Oklahoma blenders reported an exceptional demand for everything they could move, particularly the higher gravities which advanced ¼ to ½-cent in some cases. Cold weather normally brings out a number of inquiries for these blends from the northern States. This demand has been delayed slightly, due to the open weather which has prevailed. The manufacture of blends is even more restricted this year than it was in 1923 and as a result several makers are sold ahead. It is said by some marketers that many of the jobbers in the northern States buy the high gravity blend to bring up the gravity of the summer gasoline left in their tanks for use as motor fuel during the cold weather.

Natural gasolines continued scarce and in good demand, the price for Grade A products advancing to 8¾ cents in some cases. With the announcement of the export orders this grade was found to be exhausted and the refiners in North Texas turned to Grade C which was advanced ¼-cent over the price prevailing the week before. Grade B also received the impetus of higher prices, bringing 8¼ cents in most cases. The domestic demand has continued heavy in addition to the demand for use in export shipments. Several manufacturers report they are sold up over the balance of the year at the prevailing prices. The larger manufacturers now have adequate storage and the smaller manufacturers will be relieved of their distress product during the winter. It is interesting to note along this line that Cosden & Co. started to market natural gasoline from the company's Cromwell plant last week.

New Cosden Contract

The new form of contract announced during the week by the Cosden Sales Corp. was different from anything that had been in use by refiners and jobbers previously. The substance of the contract was unique and aroused considerable discussion among Mid-Continent refiners and marketers.

Among other things the Cosden contract states in part as follows:

"Price and Terms.—The buyer shall pay the seller for said property ..... cents per gallon f.o.b. Group 3, Oklahoma, said price to advance or decline exactly the amount of any general advance or decline of the official general tank wagon market price of the Standard Oil Co. of Indiana on its Red Crown gasoline in its marketing territory; provided, however, that if the "spot market price" of said product f.o.b. Group 3, Oklahoma (to be determined as hereinafter provided) is less than the price determined as above provided, the buyer shall be entitled to the spot market price, but said buyer shall not be entitled to said spot market price when the same is less than the cost of production of said product to be ascertained as hereinafter provided. And it is agreed that the cost of production of 56 Baume gravity, 450 end point gasoline is two and one-half (2½) times the price of 36 gravity crude oil as posted by the Prairie Oil & Gas Co. in the Mid-Continent Field; and that the cost of any other grade of products covered by this contract shall be determined by adding to, or deducting from, the cost of 56, 450 gasoline, the differentials in prices as shown by the publications hereinafter referred to between such products and 56, 450 gasoline.

"The spot market price above referred to shall be determined by taking the prices published in The Oil and Gas Journal, of Tulsa, Okla., the National Petroleum News, of Cleveland, Ohio, and the Thursday issue of the Chicago Journal of Commerce, and adding together the minimum and maximum of said prices in said publications issued in one week and dividing the total sum by the number of prices so added together and the quotient so obtained shall be the price for all shipments ordered forward for the week beginning Monday next following."

Basis of Price

On the basis of the present price of $1.25 for 36 gravity crude oil, the proposed cost of production of 56, 450 end point gasoline as determined by the contract would be 7.44 cents, which is approximately the present spot market price in Group 3. To the impartial observer it appears that the contract is favorable to the refiner and is a reversal of the previous contracts in which the jobber has been guaranteed a price at the expense of the refiner. It is also an unusual circumstance for a contract covering refined oils to take into consideration the market price of crude oil. The approaching expiration of many contracts and the announcement of the Cosden contract coupled with the discussion of another contract form by the National Petroleum Marketers Association in its convention is indicative of the importance of contracts in the transaction of business between refiners and jobbers. It is more than likely that contract forms will become one of the outstanding topics of discussion in refined market circles during the coming days.

It has been suggested also that the form of the Cosden contract indicates that this company, at least, anticipates that gasoline will continue to bear the burden of refining costs during the coming year, regardless of the growth in prominence of fuel oils and distillates.

Crude Situation

Discussion of the influential factors affecting the refined market would be incomplete without additional reference to the crude situation. As has been intimated in other issues of The Oil and Gas Journal, the crude oil market has tightened considerably and many experienced observers feel it will continue to do so. As a result of this situation, refiners and jobbers alike anticipate an advance in the price of Mid-Continent crude. The shrewdest observers hesitate to name a date, being content with the assertion that "an advance should come about the first of 1925."

Most of the refiners feel the two dominant purchasers in Oklahoma, the Prairie Oil & Gas Co. and the Sinclair Crude Oil Purchasing Co. will put off the day of the advance as long as possible. Other influences may be brought to bear upon these two concerns, however, which may cause an advance in the price of crude oil sooner than they have planned.

One of the influences in this direction

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Doherty Criticizes Petroleum Industry

Takes Leaders to Task for Claimed Lack of Cooperation in Speech Before Marketers. Says Legislation Needed

CLEVELAND, Ohio, Nov. 19.—Giving full expression to his views on stabilization of the oil industry, based upon special legislation applicable to oil production, an above ground storage plan and development of sales and petroleum utilization, Henry L. Doherty took to task leaders of the industry as represented on the board of directors of the American Petroleum Institute in an address before the National Petroleum Marketers Association here today. Contrasting the patriotic service of the members of the National Petroleum War Service Committee during the war with the functioning of the directorate of the Institute after the war, Mr. Doherty said there has not been a single meeting of the board which he has attended that had a quorum present and that gave careful consideration to the problems of the industry on anything like the same plane as was customary during the period of the war.

"I say this not in criticism but to explain a situation. I know that many oil men have been disappointed that the Institute has not accomplished more than it has. The fault is not with the Institute but with the industry. The individuals do not appreciate what can be accomplished by cooperation. We are individualists rather than good teamworkers," Mr. Doherty said.

At Variance With Industry

Since the summer of 1923 Mr. Doherty said he has become convinced that he can neither accept the views of his associates on the board of the Institute nor can he hope to have them accept his in many important matters. The petroleum industry is not only at variance with the views he holds, he said, but at riance with the practice of practically a variance with the practice of practically every other industry. "If our industry is on a proper basis and is being properly conducted I do not see why it does not enjoy greater public confidence and friendship. If our industry is on a proper basis and isproperly conducted I do not see why it does not enjoy better financial credit.

"We simply emerge from one Government investigation before another one is inaugurated. Our chief occupation is answering questionnaires sent out by some branch of our Government. We are neither criminals, near criminals, not anticipatory criminals and if we cannot change these conditions then I think we ought to admit that we are just plain boobs. The real truth is that our business is being properly conducted, but it is not only not on a proper basis but it is basically wrong. There are thousands of people who could for many years back have used oil to their great benefit as against other fuels but these people have so little confidence in our ability to supply them and to continue to supply them at a fair price that they will not even give us an even break," Mr. Doherty continued.

Business Basically Wrong

Mr. Doherty said to his mind the petroleum business is basically wrong and it can never be made right until we can provide a dependable supply of oil. To do this, he said, we must change the laws under which we work and make these laws as pertain to all other classes of property. Now, he said, the discovery of an oil pool results in a frenzied effort to exhaust this deposit as rapidly as possible and without regard to whether the market needs this oil or even whether the market can absorb it and on the other hand this means that we never have any real ground reserves of oil on which we can draw in case of need. He stated that at one of the Institute board meetings in 1923 his plan for correcting these conditions was practically rejected before it was heard.

"I submitted a plan to a committee of the American Petroleum Institute and a subcommittee signed the report recommending the plan, but there was so much objection to this plan that no one is now advocating it except myself. The most violent opposition came from men who did not then and do not now know what my plan is. An industry is in a bad way when it rejects things of this magnitude without a hearing. It is also my opinion that if we do not get together and put our own house in order that sooner or later someone else will attempt to do it for us and that while now we have a chance to model our own plan with proper tools if we do it ourselves, we will if we wait find somebody else doing it with a stick of dynamite or an axe."

Reviewing the changes in the industry from a kerosene to a gasoline industry, Mr. Doherty said that several years ago with the conversion of heavy products into gasoline it should have been apparent to every thinking man in the oil business that our markets would sooner or later be governed by the price of our heavy products for if these heavy products can be converted into gasoline then gasoline must take the price of the heavy product plus the cost of converting it into gasoline.

"I did not think it was a healthy thing to advertise this fact until we had gotten under way a program for bringing the heavy products up to their true value. However, an article recently appeared in The Lamp which makes this unpleasant fact a matter of public record. Luckily this statement was broadcasted for the first time during a bull market and will curtail the credit of the industry less than it would have done if announced at any earlier date. There is nothing particularly alarming in this fact if we can get the leaders of the petroleum industry to sit down and calmly recognize this fact and create the necessary machinery for correcting the condition which this situation has brought about by stimulating the sale of our heavy products and thereby establishing them at their proper price levels."

Utilization of Fuel Oil

As regards his plan for utilization of fuel oil advanced before the Institute he stated he asked an appropriation of $100,000 a year for the work of the utilization committee and that the board finally appropriated $25,000. The utilization committee has failed to function, he said. He reviewed his plan which he estimates would mean increased revenue for the industry amounting to $200,000,000 a year.

The place to store oil is not in overhead tanks but in its natural ground reservoirs, Mr. Doherty said, but great improvemept in above ground storage is possible, he contended and proposed that if it is the general desire of the oil industry to take steps toward the overground storage of oil and the creation of the fullest possible market for the stored oil he would be willing to formulate plans. He said in his belief the initiation of this work should be in the nature of proper engineering work so that oil can be stored without waste, danger or deterioration and that a warehouse company should be formed. So far as possible the warehousing of oil should be done in the form of the finished product, he said, so the user of oil could purchase what he wanted.

Mr. Doherty outlined the principal points of his plan for stabilization of production as follows:

"The legislatures of many States have already recognized the necessity for special legislation on matters of lesser importance than this and where the inequities of individual operation were not as shocking as in oil pools and the courts have sustained this legislation. You will find a mass of special legislation on the common operation of properties.

Desires Special Legislation

"You will be interested perhaps in studying the special legislation regarding irrigation and drainage districts where the owners of land are compelled by law to pool their interests and to operate as a district if the majority so elects. The plan I have advocated for the production of oil goes no further than to use the same character of legislation that has already been used for these irrigation and drainage districts and this special legislation has already secured the sanction of our courts.

"I would propose, first—That no one be allowed to drill for oil without first receiving a State permit to do so.

"Second—That nobody would be given a permit to drill for oil until an exploration district had been established.

"Third—That the exploration for oil should be restricted to that part of the exploration district one-half mile inward from the outer boundaries.

"Fourth—That the strip of one-half mile within the outer boundaries of the district should not be drilled for a period of one year after oil or gas had been found in commercial quantities or if sooner not until the exploration district had been enlarged or another district had been established adjacent to it and that the contractors on the two districts—if separate districts are formed—should not attempt to drill either half-mile strip until they had agreed on a plan on which it should be drilled, and failing to agree upon a plan, then the State engineer could specify the plan suggested by either contractor or a plan of his own.

"Fifth—That royalties should be paid to the trustees of the district and they would settle with the individual land holders according to the calculated amount of oil or gas underlying each man's land."

NATIONAL PETROLEUM MARKETERS OPEN CONVENTION AT CLEVELAND

By C. O. Willson

CLEVELAND, Ohio, Nov. 18.—Approximately 250 oil jobbers were present this afternoon when L. V. Nicholas, president of the National Petroleum Marketers Association, in the first business session, officially opened the three-day annual convention of the Association which extends through Thursday. Jobbers from all parts of the country began arriving Monday night with an especially heavy registration from the Eastern States throughout today.

Mr. Nicholas, who is slated for reelection at the annual election Wednesday without opposition, outlined briefly the plans for the three-day meeting. He termed it a meeting of stockholders of the association representing independent oil jobbing interests and called upon the membership to give their time to the serious consideration of the problems outlined for discussion in the program. He referred to jobbers as a dominant group of the oil business which sells approximately 20 per cent of all the refined products sold in the United States.

His address was followed by that of J. W. Hallman, credit manager of the Sun Oil Co., who spoke of "Credit, Its Use and Abuse."

C. L. Maguire spoke on "Profitable Merchandising of Domestic Fuel Oils and Distillates." A general discussion followed both addresses.

The exhibits of jobbers' supplies is the largest in the history of the association. Seventy-five firms have booths in the main auditorium of the Cleveland public auditorium where the convention is being held.

Clay County, Kentucky Has Well Estimated 1,000 Bbls. Natural

BOWLING GREEN, Ky., Nov. 18.—Dafoe and associates have brought in No. 2 Ham Lynn, estimated at 1,000 bbls. naturally, at 433 feet, 105 feet below the Pencil Cave in the Modoc sand, at Tinsley's bottom in Clay County, Tennessee.

EASTERN STORAGE FULL EMBARGO THREATENED

OIL CITY, Pa., Nov. 17.—That the crude oil storage situation in this section has become very acute again was acknowledged by F. D. Williams, president of the National Transit Co.

"The crude situation has become acute," stated Mr. Williams, "in fact, it is now more acute than at any time within the history of the National Transit Co. Our storage tanks are now so nearly filled that we do not know which way to turn for relief. This will make it necessary to place an embargo, probably against all receipts of crude oil, except for immediate shipment, in the near future unless more of the oil is sold by producers than is being offered by them at present.

There are a few wells which would not be hurt by any shut down, mostly second sand wells, but the majority of the wells would be permanently damaged if forced to suspend operations. The producers depend almost entirely on the pipe lines and the amount of tankage available on the leases is now small.

UPPER PAY IN GRAHAM

WINFIELD, KAN., Nov. 18.—An upper pay sand was discovered by the Roxana Petroleum Corp. in its No. 1 Spencer, NW cor. SW, Section 10-33-3, in the new Graham Pool, Cowley County. The top of the sand was found at 2,560 feet and oil at 2,574 feet and at a total depth of 2,588 feet, with the bit still in the sand, oil arose in the hole to a height of 1,800 feet.

OIL WELL SUPPLY MEN WILL MEET DEC. 8 TO DISCUSS ORGANIZATION

Manufacturers of and dealers in oil well supplies and equipment plan to hold a conference at the Texas Hotel, Fort Worth, Tex., on Monday evening, December 8 to discuss the formation of a national organization. The meeting is scheduled for the evening before the opening of the annual opening of the American Petroleum Institute which convenes in Fort Worth December 9.

Yield of Wildcat Lands Problematical

Questionnaire of Federal Trade Commission Asks One Question at Least, Oil Industry Cannot Well Answer

By James McIntyre

The Federal Trade Commission is gathering data to ascertain the natural resources of the United States. It has sent out a questionnaire to the oil industry (or a part of it) in an endeavor to learn the acreage, value and productiveness of "oil and gas lands" as of December 31, 1923, including proven and unproven lands. It is not known just how wide a scope the commission will cover in its inquiry—whether or not the questionnaire will go to every oil producing company in the United States and to every oil producing individual. The copy of the questionnaire received by The Oil and Gas Journal from Charles E. Kern, its Washington correspondent, appears to refer only to corporate ownership of oil and gas lands. If the Federal Trade Commission has a mailing list of every oil producer in the United States, corporation or individual, and interrogates and gets a reply from each, it will have something worth while, even though a part of the questionnaire is unanswerable with any degree of accuracy.

The questionnaire asks the name of the operating company; the State in which its land is located; number of acres of proven oil land, proven gas land, and proven oil and gas land, and the market value of each; the number of acres of unproven prospective oil and gas land; the average daily production of its leases as of December 31, 1923 and the estimated quantity recoverable from the foregoing lands subsequent to December 31, 1923.

The Unanswerable Question

Every question on the list can be answered excepting the most important of all—the very one perhaps which the Federal Trade Commission is most anxious to know about, if it really is out to learn the natural resources of the United States, the estimated quantity of recoverable crude from the producing and nonproducing properties under lease in this country.

Petroleum engineers can figure an approximate of what a producing area will ultimately yield and can give a pretty shrewd estimate as to how long a time will ensue before a lease need be junked as no longer worth operating, but when it comes to estimating what the millions of acres of unproductive lands held by oil companies will produce only God knows—and that is said with all reverence. Surely no oil man or the combined brains of the industry can make any kind of a reasonable guess as to what nature has stored far below the surface.

This is not the first time an effort has been put forth to estimate the unrecovered but recoverable oil resources of the country. Individuals and organized bodies have been doing it ever since the industry started and have all fallen short of the mark.

Estimate Made in 1921

Early in 1921 the United States Geological Survey extended an invitation to the American Association of Petroleum Geologists to join with it in a survey of the probable and possible producing oil territory in the United States, which would include an estimate of the quantity of petroleum remaining in the ground and recoverable by methods then known. The invitation was accepted and a board of survey was appointed made up of the best minds of the geological profession. The board made a thorough canvass of the country's oil reserves, took into consideration the quantity of oil already removed from the ground in every field, estimated after much study the possible productiveness of nonproducing territory in every part of the country and concluded that there was left unproduced in the ground at the close of the year 1921 approximately 9,150,000,000 bbls. of recoverable oil, divided as to location as follows:

Region—	Millions of Bbls.
New York	100
Pennsylvania	260
West Virginia	200
Ohio	190
Indiana and Michigan	70
Illinois	440
Kentucky, Tennessee, Northern Alabama and northeastern Mississippi.	175
Missouri, Iowa, North Dakota, Wisconsin and Minnesota	40
Kansas	425
Oklahoma	1,340
North Louisiana and Arkansas	525
Texas, except Gulf Coast	670
Gulf Coast, Texas and South Louisiana	2,100
Colorado, New Mexico and Arizona	50
Wyoming	525
Montana, Nebraska and South Dakota	100
Utah, Nevada, Oregon, Washington and Idaho	80
California	1,850
Eastern Gulf Coastal Plain and Atlantic Coast States	10
Total, in millions	9,150

This was the most dependable estimate that could have been made at the time and no other body of men could have been got together better fitted to make the estimate than the members of the committee of gologists who had the courage to put out the above estimate over their names.

Up to December 31, 1921, the United States had produced approximately 5,906,000,000 bbls. in 62 years and 4 months, therefore the board of survey must have concluded that the total quantity of oil recoverable in the United States would be about 15,000,000,000 bbls. in round numbers. It was also concluded at the time the survey was made that while less than 6,000,000,000 bbls. of crude oil had been sufficient to meet all the needs of the United States for over 62 years, the 9,000,000,000 bbls. of recoverable oil remaining in the ground would only be sufficient to supply the nation for about 20 years.

The committee of geologists, in calculating the oil reserves in fields already discovered and proved were undoubtedly close to the mark so far as the consideration of the producing horizons then known was concerned. Beyond this the experts could only make a guess. It will be seen by scritinizing the table of estimates closely that the geologists did not overlook any part of the country which held out a possibility of containing a reserve of oil. They even included Michigan, Minnesota, Alabama, Mississippi, Nebraska, North and South Dakota, Arizona, Oregon, Washington, Idaho, Nevada—in fact they only excluded a very small area in their calculations, evidently concluding that New England alone was altogether hopeless.

Three months from the time they dated their report the United States had produced its sixth billion barrel of oil and a year and seven months later it had passed its seventh billion barrel mark and by the middle of next spring it will have passed its eighth billion.

What Has Since Occurred

We do not know how the board of survey came to its conclusions as to the oil recoverable in areas which were then unproductive. The committee was made up of men who were thoroughly conversant with geological conditions throughout the country as they were then known, but they had no way of knowing, any more than the rest of us, what undiscovered fields, or fields then in the early stage of development, would do. For example, they never dreamed that three fields in California which in 1921 had produced 3,840,000 bbls., would have an output of 40,763,000 bbls. in 1922 and an output of 182,957,000 bbls. in 1923. Neither did they have any way of knowing, nor did they guess, that Limestone and Navarro Counties, in Texas, would produce over 35,000,000 bbls. of oil in 1922 and over 50,000,000 bbls. in 1923, the combined production of the two years having been 86,133,499 bbls. In 1922, the Burbank Pool, in Osage County, Oklahoma, was being heavily developed and the county produced over 17,000,000 bbls. in excess of its 1921 record as a result, and in 1923 16,500,000 bbls. more than in 1921. Creek County, Oklahoma, where the Glenn Pool and Cushing Fields were still the biggest producers in 1921, produced less than 21,000,000 bbls. that year, while with the development of the Bristow area it produced 36,000,000 bbls. in 1922 and 34,700,000 bbls. in 1923.

The board of survey in its estimate on the recoverable production of Arkansas and of Louisiana did not separate them but estimated that both States would ultimately produce 526,000,000 bbls. At the time the survey was made the El Dorado Field was being developed but a greater one, Smackover, was yet undiscovered. El Dorado produced over 11,000,000 bbls. in 1921 and 11,600,000 bbls. in 1922, but the undiscovered Smackover Field, to the surprise of the oil world, came through with over 77,000,000 bbls. in its first two years, a supply of crude undreamed of by the geologists who made the estimate, and is now, after two years of development, outranked by but one field in the United States, that being Long Beach, California.

The survey credited Pennsylvania with 260,000,000 bbls. of recoverable crude, but recently Dr. David White estimated that the Bradford sands in McKean County, alone contained a saturation of over 3,000,000,000 bbls. and operators in that field before Doctor White made his amazing estimate were of the opinion that they would ultimately recover from the Bradford sand more than the experts in 1921 believed the entire State would yield.

The whole record of production since 1921 has been such as to show conclusively that the estimate of how much oil was recoverable in the United States was altogether low. The production for three years previous to the date of the estimate had been about 1,290,000,000 bbls., while the production of the three years following the estimate will have been in excess of 2,000,000,000 bbls., a gain of over 700,000,000 bbls.

Any estimate made at this time by the executives of oil companies and by individual producers will be fully as futile as was that of the expert geologists in 1921. They can tell pretty closely what they will get out of the wells that are already producing and from the sands from which those wells are producing, but they don't know the potentialities underlying the deepest wells on their producing leases.

Who would have said a year ago that by this time over 6,000,000 bbls. of oil would be recovered from a deeper sand in the Tonkawa, Oklahoma, Field or that 6,000,000 bbls. of oil would be taken from a few sections of land in Township 10-8, in Seminole County, Oklahoma, or that Oklahoma production generally would mount to 550,000 bbls. a day, or 135,000 bbls. a day in excess of what it was last November, mostly by reason of deeper drilling?

As to the question of what the wildest acreage will produce no set of men can give a reply that is any more than the veriest guess. One man's guess would be as good as another's and if the Federal Trade Commisison succeeds in obtaining from the oil producers of this country any such estimate it will have no value what-

(Continued on Page 126)

AMERICAN PETROLEUM INSTITUTE TO ELECT SOME NEW DIRECTORS

The terms of office of the following directors of the American Petroleum Institute expire this year, and the offices will be voted on at the annual meeting to be held at Fort Worth in December:

Production group: Pacific coast division, L. P. St. Clair, Independent Oil Producers' Agency; E. H. Hillman, Standard Oil Co. (California), and Dave S. Ewing, Call Oil Co. Central United States division, W. S. Farish, Humble Oil & Refining Co. Eastern United States division, George W. Crawford, Ohio Fuel Supply Co.

Manufacturing group, Pacific coast division, H. R. Gallagher, Shell Co. of California. Central United States division, J. S. Cosden, formerly Cosden & Co. Eastern United States division, R. D. Benson, Tide Water Oil Co.

Distribution group: Pacific coast division, K. R. Kingsbury, Standard Oil Co. (California). Central United States division, Col. R. W. Stewart, Standard Oil Co. (Indiana), and P. C. Crenshaw, Home Oil Co. Eastern United States division, A. C. Woodman, formerly Sinclair Consolidated Oil Corp. and now Acewood Petroleum Co.

Transportation group: J. Howard Pew, Sun Oil Co., and J. E. O'Neil, formerly Prairie Oil & Gas Co.

Supply group: A. A. Moody, Jarecki Manufacturing Co.

Natural gas group, a vacancy exisit on account of the death of E. P Whitcomb, Union Natural Gas Co.

Foreign trade group: W. C. Teagle, Standard Oil Co. (New Jersey.)

At large group: John Barneson, General Petroleum Corp.; F. B. Henderson, Associated Oil Co.; Julius Germany, Panhandle Refining Co., and C. D. Chamberlin, National Petroleum Assotion.

The Board of Directors

The board of directors of the American Petroleum Institute consists of 50 elective members, representative of the following lines of endeavor: Production, 10 members; manufacture, 10 members; distribution, seven members; transportation, three members; foreign trade, three members; supply, one member; natural gas, one member, and a group-at-large, 15 members. The 10 directors representing production are divided into the following subgroups: Pacific Coast, Rocky Mountain, central United States and eastern United States. The ten directors representing manufacture are divided into the same subgrouping. The seven directors representing distribution, the same. The three directors representing transportation are subdivided into a pipe line group, a ships group and a tank cars group. The three directors representing foreign trade are subdivided as follows: Mexican and South American group, Far Eastern group and European group. The directors in the "at large" group are not subgrouped under any industry departments or geographical divisions.

(Continued on Page 82)

P.I.W.
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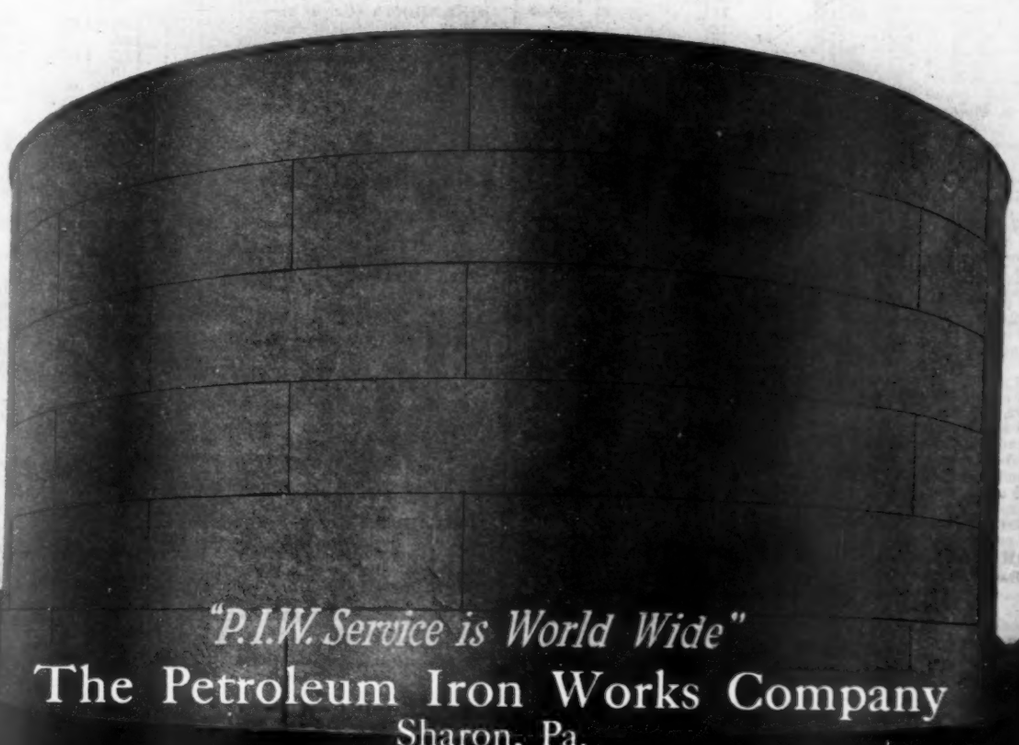
It's more than storage,
under present conditions,
it's a sound investment.



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REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

CHICAGO DIST. (Based on Group 3)—	Nov. 18		Nov. 11		Nov. 4	
50-52 450 end point (Naphtha)	.06¾	.07	.06¾	.07	.06¾	.07
56-58 450 end point	.07	.07¼	.07¼		.07¼	.07½
58-60 437 end point (U. S. Motor)	.07½	.07¾	.07½	.07¾	.07½	.07¾
60-62 400 end point	.09	.09¼	.08½	.08¾	.08¾	.09
64-66 375 end point	.10	.10¼	.09½	.09¾	.09¾	.10
68-70 360 end point	.10½	.10¾	.10¼	.10½	.10½	.10¾
OKLAHOMA (Group 3)—						
50-52 450 end point	.07¼	.07	.06½	.03¾		
56-58 450 end point	.07¼	.07½	.07	.07¼	.06¾	.07
58-60 437 end point (U. S. Motor)	.07¾		.07½	.07¾	.07¼	.07½
60-62 400 end point	.09		.08¾		.08¾	
64-66 375 end point	.10		.09¾		.09½	
68-70 350 end point	.10½	.10¾	.10¼	.10½	.10¼	.10½
KANSAS—						
58-60 437 end point (U. S. Motor)	.07¾	.08	.07½	.07¾	.07½	.07¾
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.07		.06¾	.07	.06½	
50-52 440 end point (Naphtha)	.07	.07¼	.07		.06½	.06¾
56-58 450 end point	.07¼	.07½	.07	.07¼	.06¾	.07
58-60 437 end point (U. S. Motor)	.07¾		.07½		.07¼	.07½
60-62 400 end point	.09		.08¾		.08¾	
64-66 390 end point	.09½	.09¾	.09¼	.09½	.09	.09¼
64-66 375 end point	.09¾	.10	.09½	.09¾	.09¼	.09½
68-70 360 end point	.10½		.10	.10¼	.10	.10¼
NORTH LOUISIANA—						
56-58 450 end point	.08	.08¼	.07½	.07¾	.07¼	.07½
58-60 437 end point (U. S. Motor)	.08¼	.08⅝	.07¾	.08	.07½	.08
60-62 400 end point	.09¼	.09½	.09¼		.09	.09¼
64-66 390 end point	.10	.10¼	.09½	.09¾	.09¼	.09½
64-66 375 end point	.10¼	.10½	.09¾		.09½	.09¾
ARKANSAS—						
58-60 450 end point	.08¼	.08½	.07½	.07¾	.07½	.07¾
58-60 437 end point (U. S. Motor)	.08½	.08⅝	.07¾	.08	.07¾	
64-66 375 end point	.10½		.09¾		.09¾	
ROCKY MOUNTAIN STATES—						
*58-60 437 end point (U. S. Motor)	.10½	.10¾	.10½	.10¾	.10¼	.10½
PENNSYLVANIA—						
52 Naphtha	.09¼		.09¼		.09	
54 Naphtha	.09¾		.09¾		.09¼	
56 Gasoline	.10		.10		.09½	
58 Gasoline	.10½		.10½		.10¼	
60 Gasoline	.11¾		.11¼		.11	
62 Gasoline	.12½		.12		.11¾	
64 Gasoline	.14½		.13½		.12¼	
66 Gasoline	.15¼		.15¼		.15¼	
68-70 Gasoline	.17		.17		.17	
CALIFORNIA—						
54-56 437 end point (U. S. Motor) domestic	.09	.09½	.09	.09½	.09	.09½

*Colorado points.

NATURAL GASOLINE

CHICAGO DIST. (Based on Group 3)—	Nov. 18		Nov. 11		Nov. 4	
Grade Double A, 80-87.9 375 e.p., rec. 90%	.08¾		.08¼	.08½	.08¼	.08½
Grade A, 72-79.9, 375 end point, rec. 90%	.08¾		.08¼	.08½	.08¼	.08½
Grade Double B, 84-92, 375 e.p., rec. 85%	.08½	.08¾	.08	.08¼	.08	.08¼
Grade B, 76-83.9, 375 end point, rec. 85%	.08½	.08¾	.08	.08¼	.08	.08¼
Grade C, 80-90, 375 end point, rec. 78%	.08	.08¼	.07½	.07¾	.07½	.07¾
OKLAHOMA (Group 3)—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.08½	.08¾	.08½		.08¼	
Grade A, 72-79.9, 375 end point, rec. 90%	.08½	.08¾	.08½		.08¼	
Grade Double B, 84-92, 375 e.p., rec. 85%	.08¼		.08	.08¼	.08	
Grade B, 76-83.9, 375 end point, rec. 85%	.08¼		.08	.08¼	.08	
Grade C, 80-90, 375 end point, rec. 78%	.08		.07¾		.07½	
NORTH TEXAS—						
Grade Double A, 80-87.9, 375 e.p., rec. 90%	.08½		.08½		.08¼	
Grade A, 72-79.9, 375 end point, rec. 90%	.08½		.08½		.08¼	
Grade Double B, 84-92, 375 e.p., rec. 85%	.08¼		.08	.08¼	.07¾	.08
Grade B, 76-83.9, 375 end point, rec. 85%	.08¼		.08	.08¼	.07¾	.08
Grade C, 80-90, 375 end point, rec. 78%	.08		.07½	.07¾	.07¼	.07½
NORTH LOUISIANA—						
Grade B, 76-83.9, 375 end point, rec. 85%	.07¾	.08	.08½		.08¼	.08½
Grade C, 76-82, 375 end point, rec. 85%	.07¼	.07½	.07½	.07¾	.07½	.07¾
CALIFORNIA—						
68-80 absorption, 360-390 end point	.10½	.11	.10½	.11	.10½	.11
78-84 compression, 350 end point	.10		.10		.13	

MOTOR NATURAL GASOLINE (BLEND)

CHICAGO DIST. (Based on Group 3)—	Nov. 18		Nov. 11		Nov. 4	
60-62 450 end point	.07¾	.08	.07¼	.07½	.07¼	.07½
64-66 450 end point	.07¾	.08	.07½	.07¾	.07	.07¼
68-70 437 end point	.08	.08¼	.07½	.07¾	.07¼	.07½
OKLAHOMA (Group 3)—						
60-62 450 end point	.07¾		.07½		.07¼	.07½
64-66 437 end point	.08		.07½	.07¾	.07½	.07¾
68-70 430-435 end point	.08	.08¼	.07½	.07¾	.07½	.07¾
NORTH TEXAS—						
58-62 440 end point	.07¾	.08	.07½	.07¾	.07¼	.07½
58-60 450 end point	.07¾	.08	.07½	.07¾	.07¼	.07½
PENNSYLVANIA—						
*60-62	.12		.12		.11	
*64-66	.12		.12		.11	
*66-68	.12		.12		.11	
*68-70	.12		.12		.11	

*At Sistersville, W. Va.

BURNING OIL

CHICAGO DIST. (Based on Group 3)—	Nov. 18		Nov. 11		Nov. 4	
41-43 water white Kerosene	.04⅜	.04⅝				
42-44 water white Kerosene	.04½	.04¾	.04½	.04¾	.04½	.04¾
NORTH LOUISIANA—						
41-43 prime white Kerosene	.04¾	.05	.04⅝	.04¾	.04¾	.05
42-44 water white Kerosene	.05	.05¼	.04¾	.05	.05	.05¼
KANSAS—						
41-43 water white Kerosene	.04⅝	.04⅞	.04⅝	.04⅞	.04¾	.04⅞
ROCKY MOUNTAIN STATES—						
*40-42 water white Kerosene	.08	.08¼	.08	.08¼	.08¼	.08½
NORTH TEXAS—						
41-43 water white Kerosene	.04¼	.04½	.04⅜	.04⅝	.04½	.04⅝
41-43 prime white Kerosene	.04⅜	.04¼	.04¼	.04½	.04½	.04⅝
40-42 prime white Kerosene	.04⅜	.04¼	.04¼	.04½	.04½	.04⅝
42-44 water white Kerosene	.04⅝	.04¾	.04⅝	.04¾	.04⅝	.04⅞
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.04⅜	.04½	.04⅜	.04⅝	.04½	.04⅝
42-44 water white Kerosene	.04½	.04¾	.04⅝	.04¾	.04¾	.04⅞
41-43 prime white Kerosene	.04	.04¼	.04⅛	.04¼	.04¼	.04½
ARKANSAS—						
41-43 water white Kerosene	.05	.05¼	.04¾	.05	.04¾	.05
42-44 water white Kerosene	.05½		.05	.05⅛	.05	.05⅛
PENNSYLVANIA—						
43 Kerosene prime white	.07¼		.07¼		.07	
45 Kerosene water white	.07½		.07½		.07¼	
46 Kerosene water white	.08		.08		.07¾	
47 Kerosene water white	.08¼		.08¼		.08	
34 Neutral	.09		.09		.09	
34 Sundebloomed Neutral	.07¾		.07¾		.07¾	
36 Miners' Neutral	.06½		.06½		.06½	
300 Mineral Seal	.07½		.07½		.07½	
CALIFORNIA—						
40-42 water white (high burning test)	.07½	.08	.07½	.08	.07½	.08
Engine distillate, 43-45 445 end point	.06	.06½	.06½	.07	.06½	.07
Engine distillate, 42-44 480 end point	.05½	.05¾	.06	.06¼	.06	.06⅜

*Colorado points.

FUEL OILS

CHICAGO DIST. (Based on Group 3)—	Nov. 18		Nov. 11		Nov. 4	
24-26 Fuel Oil (sellers' cars Group 3)	1.05	1.10	1.00	1.05	.97½	1.02½
22-24 (El Dorado)	1.05	1.10	1.00	1.05	1.00	
18-20 (Smackover)	1.05	1.10	1.00		.95	1.00
32-36 Gas Oil	.02⅞	.03½	.02⅞	.03	.02¾	.02⅞
36-38 Distillate	.03½	.03¾				
38-40 Straw distillate	.03¾	.04	.03⅝	.03¾	.03¾	.04
KANSAS—						
24-26 Fuel Oil	1.17½	1.20	1.10	1.15	1.10	
32-36 Gas Oil	.03	.03⅛	.03	.03⅛	.03	.03⅛
38-40 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
OKLAHOMA (Group 3)—						
22-26 Fuel Oil (sellers' cars)	1.02½	1.05	1.00		.97½	1.00
24-26 Fuel Oil (buyers' cars)	1.05		1.00		.95	1.00
24-26 Fuel Oil (sellers' cars)	1.05	1.07½	1.00	1.05	1.00	
28-30 Fuel Oil (sellers' cars)	1.15		1.10	1.15	1.00	
32-36 Gas Oil	.02⅞	.03	.02¾	.03	.02¾	.02⅞
38-40 Straw distillate	.03½	.03¾	.03½	.03¾	.03⅝	.03¾
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.05	1.10	.95	1.00	.95	1.00
26-30 Fuel Oil	1.15		1.05	1.10	1.05	1.10
32-36 Gas Oil	.02¾	.02⅞	.02¾	.02⅞	.02⅝	.02¾
36-38 Gas Oil	.03	.03⅛	.03	.03¼	.03	.03¼
38-40 Straw distillate	.03⅜	.03½	.03½	.03⅝	.03⅝	.03¾
NORTH LOUISIANA—						
18-20 Fuel Oil	.95	1.00	1.00	1.05	.95	1.00
24-26 Fuel Oil	1.00	1.05				
32-36 Gas Oil	.03¼	.03½	.03⅛	.03¼	.03⅛	.03¼
ARKANSAS—						
38-40 Distillate	.03½	.03¾	.03¾	.04	.03¾	.04
32-36 Gas Oil	.03	.03¼	.03	.03¼	.03	.03¼
22-26 Refinery Fuel Oil	1.05		1.00		.95	1.00
GULF COAST (South Texas)—						
Gas Oil	.04½	.05	.04½	.05	.04½	.05
Fuel Oil	1.60	1.70	1.50	1.60	1.50	1.60
PENNSYLVANIA—						
30-34 Fuel Oil	.05		.05		.05	
36-40 Fuel Oil	.05¼		.05¼		.05¼	
CALIFORNIA—						
33-36 Distillate	.04	.04½	.04	.04½	.04	.04½
27-33 Distillate	.03¾	.04	.03¾	.04	.03¾	.04
15-20 Fuel Oil (at tide water)	1.40		1.40		1.40	

NEUTRAL OILS

OKLAHOMA (Group 3)—	Nov. 18		Nov. 11		Nov. 4	
70-80 vis., 2½ color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
100 vis., 2 color, 20-25 cold test	.04½	.05	.04½	.05	.04½	.05
100 vis., 3 color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
150 vis., 3 color, 20-25 cold test	.07	.07½	.07	.07½	.07	.07½
150 vis., 4 color, 20-25 cold test	.06½	.07	.06½	.07	.06½	.07
180 vis., 4 color, 23-28 cold test	.08	.08½	.08	.08½	.08	.08½
180 vis., 3 color, 23-28 cold test	.08½	.09	.08½	.09	.08½	.09
200 vis., 3 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
200 vis., 4 color, 23-28 cold test	.09½	.10	.09½	.10	.09½	.10
220 vis., 3 color, 25-30 cold test	.11½	.12	.11½	.12	.11½	.12
220 vis., 4 color, 25-30 cold test	.10¾	.11½	.10¾	.11½	.10¾	.11½
240 vis., 3 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
240 vis., 4 color, 25-30 cold test	.12¾	.13¼	.12¾	.13¼	.12¾	.13¼
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
280 vis., 4 color, 25-30 cold test	.15	.15½	.15	.15½	.15	.15½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.07½	.08	.07½	.08	.07¼	.08
180 vis., 6 color, 23-28 cold test	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
200 vis., 5 color, 23-28 cold test	.09	.09½	.09	.09½	.09	.09¾
200 vis., 6 color, 23-28 cold test	.13	.13½	.13	.13½	.13	.13¾
220 vis., 5 color, 25-30 cold test	.10	.10½	.10	.10½	.10	.10¾
220 vis., 6 color, 25-30 cold test	.14¼	.14¾	.14¼	.14¾	.14¼	.14¾
240 vis., 5 color, 25-30 cold test	.12	.12½	.12	.12½	.12	.12¾
240 vis., 6 color, 25-30 cold test	.15¼	.15¾	.15¼	.15¾	.15¼	.15¾
280 vis., 5 color, 25-30 cold test	.13½	.14	.13½	.14	.13½	.14
180-200 vis., S. R. green, 40-45 cold test	.07	.07¼	.07	.07¼	.07	.07¼
190-200 dark green, 40-45 cold test	.06	.06½	.06	.06½	.06	.06¾
170-190 dark green, 40-45 cold test	.05¾	.06	.05¾	.06	.05¾	.06

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

600, E filtered	.20	.21	.20	.21	.20	.21
190-200 vis. @ 210 "D" Bright Stock	.34		.34		.34	
200-210 vis. @ 210 "E" Bright Stock	.29		.29		.29	
150 vis. @ 210 "D" Bright Stock	.30		.30		.30	
150 vis. @ 210 "E" Bright Stock	.26		.26		.26	
Waxes:						
124-126 White Crude Scale Wax	.04⅞	.05⅛	.04¾	.05	.04⅞	.05⅛
PENNSYLVANIA—						
150, 3 color	.17		.17		.16½	
180, 3 color	.19½		.19		.18½	
200, 3 color	.21½		.21½		.21½	
220, 3 color	.22		.23		.23	
600, steam refined	.19¼		.19¼		.19	
625, steam refined	.25		.24		.23	
650, steam refined	.26¼		.25¾		.24½	
600, Pennsylvania flash	.30		.29		.29	
630, Pennsylvania flash	.36		.36		.36	
*550, E filtered	.19¼		.19¼		.19¼	
*600, E filtered	.22		.22		.22	
600, E filtered	.22½		.22½		.22½	
600, D filtered	.28		.28		.28	
550, E filtered	.20		.20		.20	
550 D filtered	.24		.24		.24	
Pennsylvania Bright Stock	.36		.36		.35	
†122-124 White Crude Scale Wax	.05⅜		.05⅜		.05⅜	
†122-124 White Crude Scale Wax	.05½		.05½		.05½	

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06½	.07	.06½	.07	.06½	.07
No. 2 color, 100 vis., pale oil	.09½	.10½	.09½	.10½	.08½	.09½
No. 2 color, 150 vis., pale oil	.11½	.12½	.11½	.12½	.10½	.11½
No. 3 color, 200 vis., pale oil	.13½	.14½	.13½	.14½	.12½	.13½
No. 3 color, 300 vis., pale oil	.16	.17	.16	.17	.15	.16
No. 3½ color, 500 vis., pale oil	.18	.19	.18	.19	.17	.18
No. 3½ color, 750 vis., pale oil	.23½	.24½	.23½	.24½	.22½	.23½
No. 4½ color, 1200 vis., pale oil	.25½	.26½	.25½	.26½	.24½	.25½
No. 4½ color, 2000 vis., pale oil	.30½	.31½	.30½	.31½	.29½	.30½
No. 2 color, 150 vis., pale filtered	.20½					
No. 2 plus color, 200 vis., pale filtered	.22					
No. 2½ minus color, 300 vis., pale filtered	.25½					
No. 2½ color, 500 vis., pale filtered	.29½					
No. 2½ color, 750 vis., filtered	.39½					
No. 5 to 6 color, 200 vis., red oil	.12	.13	.12	.13	.11	.12
No. 5 to 6 color, 300 vis., red oil	.14½	.15½	.14½	.15½	.13½	.14½
No. 5 to 6 color, 500 vis., red oil	.16	.17	.16	.17	.15	.16
No. 5 to 6 color, 750 vis., red oil	.20½	.21½	.20½	.21½	.19½	.20½
CALIFORNIA—						
200 vis., 2½-3 color	.15	.16	.15	.16	.15	.16
300 vis., 2 -4 color	.15	.17	.15	.17	.15	.17
350 vis., 3½-4 color	.17½	.18½	.17½	.18½	.17½	.18½
400 vis., 4 -4½ color	.19	.20	.19	.20	.19	.20
Red Neutrals:						
200 vis., 4½-5 color	.13	.14	.13	.14	.13	.14
300 vis., 5 -6 color	.14	.16	.14	.16	.14	.16
400 vis., 5 -6 color	.16	.17	.16	.17	.16	.17
300 vis., 6 -6½ color	.17	.18	.17	.18	.17	.18
600 vis., 9½ plus color	.18	.19	.18	.19	.18	.19

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK DOMESTIC MARKET

Bayonne Refinery Prices:	Nov. 18	Nov. 11	Nov. 4
U. S. Motor Gasoline, 58-60 437	.12	.11¾	
*Bunker Oil, 14-16 Be.	1.75	1.75	1.75
Diesel Oil, 28-30 Be.	2.00	2.00	2.00
Furnace Oil, New York City	.10	.10	.10
Gas Oil, 32-36 Be.	.05	.05	.05
41-43 Kerosene prime white	.08⅝	.09	

*Lighterage 6.5c a barrel extra.

NEW YORK EXPORT PRICES

Motor Gasoline:	Nov. 18	Nov. 11	Nov. 4
58-60 Be. gravity, in cases	.26.40	.26.40	
U. S. Navy, in bulk	.12¼	.12¼	
Naphtha:			
60° F., 59-61 Be. gravity, in bulk	.13¼	.13¼	
60° F., 63-66 Be. gravity, in bulk	.14½	.14½	
60° F., 66-68 Be. gravity, in bulk	.16	.16	
Kerosene:			
Standard white, 40-42 Be grav., in bulk	.06½	.06½	
Standard white, 40-42 Be. grav., in barrels	.13½	.13½	
Standard white, 40-42 Be. grav., in cases	.16.9	.16.9	
Water white, 42-44 Be. grav., in bulk	.07½	.07½	
Water white, 42-44 Be. grav., in barrels	.14½	.14½	
Water white, 42-44 Be. grav., in cases	.17.9	.17.9	
Lubricating Oils:			
Cylinder Stock, extra light filtered, 600, in barrels	.44½	.44½	
Cylinder Stock, light filtered, 600, in barrels	.38½	.38½	
No. 5 Bright Stock, .897 spec. grav.	.48½	.48½	
No. 1 white neutral, .878 spec. grav.	.43	.43	
No. 1 Summer Black, .895 spec. grav.	.12	.12	
Special "A" red oil, .897 spec. grav., 170 vis.	.21	.21	
No. 2 red oil, .903 spec. grav., 212 vis.	.22	.22	
No. 1 red oil, .905 spec. grav., 265 vis.	.23	.23	
Polar red oil, .906 spec. grav., 295 vis.	.25	.25	
Pale oil, "25", .899 spec. grav.	.19½	.19½	
Pale oil, "28", .902 spec. grav.	.16	.16	
Paraffin Wax:			
120-122 a.m.p., per lb.	.06	.06	
125-127 a.m.p., per lb.	.06¼	.06¼	
130-132 a.m.p., per lb.	.06½	.06½	
135-137 a.m.p., per lb.	.07¼	.07¼	

LOS ANGELES EXPORT PRICES

	Nov. 18		Nov. 11		Nov. 4	
Kerosene water white	.05	.05½	.05	.05½	.05	.05½
U. S. Motor gasoline, 54-56, 437 end point	.08½	.09	.08½	.09	.09	.09½

CRUDE OIL PRICES

October 27.—Standard Oil Co. of Louisiana advanced Cotton Valley crude 15 cents.

November 6.—Major purchasing companies advanced Grade "A" Gulf Coast crude 25 cents and Grade "B" 20 cents. Indian Refining Co. advanced Western Kentucky crudes 10 cents.

November 12.—Standard Oil Co. of Louisiana advanced Bellevue crude 25 cents.

Arkansas and North Louisiana

Caddo, 38° and above	$1.35
35° to 37.9°	1.25
32° to 34.9°	1.15
Below 32°	1.00
Homer, 35° and above	1.10
33° to 34.9°	1.00
31° to 32.9°	.90
Below 31°	.75
Haynesville, 33° and above	1.00
Below 33°	.90
El Dorado, 33° and above	1.00
Below 33°	.90
Bull Bayou, 38° and above	1.15
35° to 37.9°	1.00
32° to 34.9°	.85
Cotton Valley	.95
De Soto	1.20
Crichton	1.00
Bellevue	1.35
Smackover, 25° and above	.95
Below 25°	.85
*Stephens, Ark.:	
26° and above	.90
Below 26°	.70

*Posted by Atlantic Oil Producing Co.

Wyoming and Montana

Rock Creek (Wyo.)	$ .95
Salt Creek	.85
Big Muddy	.75
Mule Creek	.60
Grass Creek (light)	1.20
Elk Basin	1.20
Lance Creek	1.15
Osage	1.15
Cat Creek (Mont.)	1.20
Sunburst (Mont.)	.90
Lost Soldier	.78
Greybull and Torchlight	1.15
Hamilton Dome	.80

Lander based on contracts covering entire production of fields.

Oklahoma, Kansas, North and Central Texas

Prairie Oil & Gas Co. and other major purchasing companies, except as noted:

Below 30°	$ .75
30° to 32.9°	.90
33° to 35.9°	1.10
36° and above	1.25
Magnolia Petroleum Co.:	
*33° and above	1.25
Corsicana Light	1.25
Corsicana Heavy	.90
Mexia	1.25
Powell	1.25
Thrall	1.00

*Below 33° gravity, same as Prairie.

Humble Oil & Refining Co.

Ranger:	
Below 30°	$ .90
30° to 32.9°	1.10
33° to 35.9°	1.25
36° and above	1.35
Mexia	1.25
Powell	1.25
Currie	1.25
Richland	1.25

*Wichita-Archer Counties and Moran, same as Prairie.

Gulf Coast

†Grade "A"	$1.50
†Grade "B"	1.25
Luling	.90
Laredo (Magnolia Petroleum Co.)	.75
Rockdale-Minerva (Milam County)	1.25
Calliham (Live Oak-McMullen)	1.53
*High Island	.85

*Posted by Sun Co.

†Following are the specifications from Gulf Coast crudes as posted by Humble Oil & Refining Co.:

"Grade "A"—Viscosity—Not less than 100 seconds at 100° F. Saybolt sulphur—Not over .4% Baume gravity. Not over 25 at 60° F.

Cold test of distillates having viscosity of 1,000 seconds at 100° F., A. S. T. M. method.

Grade "B"—Embraces all coastal crude which does not meet the test for "A" Grade crude.

*Somerset	
26° and above	.95
Below 26°	.85

*Posted by Grayburg Oil Co.

California

14° to 19.9°	$1.00
20° to 20.9°	1.01
21° to 21.9°	1.02
22° to 22.9°	1.03
23° to 23.9°	1.05
24° to 24.9°	1.07
25° to 25.9°	1.10
26° to 26.9°	1.13
27° to 27.9°	1.16
28° to 28.9°	1.19
29° to 29.9°	1.22
30° to 30.9°	1.25
31° to 31.9°	1.28
32° to 32.9°	1.31
33° to 33.9°	1.34
34° to 34.9°	1.37
35° to 35.9°	1.40
36° to 36.9°	1.46
37° to 37.9°	1.52
38° to 38.9°	1.58
39° to 39.9°	1.64
40° to 40.9°	1.70
41° to 41.9°	1.76
42° and above	1.82

Eastern States

Penna Grade Oil in New York Transit Lines	$2.85
Bradford District Oil in National Transit Lines	2.85
Penna Grade Oil in National Transit Lines	2.75
Penna Grade Oil in Southwest Pa. Pipe Line Lines	2.75
Penna Grade Oil in Eureka Pipe Line Lines	2.75
Penna Grade Oil in Buckeye Pipe Line Lines	2.75
Cabell Grade Oil in Eureka Pipe Line Lines	1.45
Corning Grade Oil in Buckeye Pipe Line Lines	1.50
Somerset Medium Oil in Cumberland Pipe Line Lines	1.55
Somerscet Light Oil in Cumberland Pipe Line Lines	1.70
Ragland Grade Oil in Cumberland Pipe Line Lines	.90
Lima	1.58
Wooster	1.40
Illinois	1.37
Indiana	1.38
Princeton	1.37
Plymouth	.75
Waterloo	.75
†Oil Springs, Canada	2.30
†Petrolia, Canada	2.23
*Western Kentucky, 36° and above	1.30
*Western Kentucky, 33° to 35.9°	1.20
*Western Kentucky, 32.9° and below	1.10
Cumberland, Barren and Monroe Counties, (Kentucky) (Paragon Development Co.)	1.70

†Plus Government bounty of 26½c.

*Prices for Warren, Allen, Hancock, and Ohio Counties by Indian Refining Co. Prices for Warren and Simpson Counties by Paragon Development Co., same as Indian Refining Co.

Mexican Crude

*Tuxpam (f.o.b. Mexican ports)	$1.15
†Panuco (f.o.b. Mexican ports)	.95
Tuxpam (New York)	1.72
Panuco (New York)	1.38

*Plus 32.33c. †Plus 17.64c tax. Prices based on contracts.

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MEMBER AUDIT BUREAU OF CIRCULATION

STILL ANOTHER QUESTIONNAIRE

The latest questionnaire sent to oil companies by the Federal Trade Commission is described by the recipients as about the limit.

Aside from the time and cost of the labor required to assemble the answers there is at least one which can be known only to Omniscience, the estimated quantity of oil and gas recoverable from the unproven productive oil and gas lands held December 31, 1923.

The best qualified men in the world have made repeated efforts to estimate the recoverable oil reserves only to find their estimates made ridiculous by actual development.

Not even at the orders of the Federal Trade Commission can they do better.

Anyway, what has the Federal Trade Commission to do with estimates of the natural resources of the country?

It has been generally understood that this was the special purpose and function of the United States Geological Survey. Hitherto, at least, that has been the Governmental agency charged with records of that character, with statistics of production and supervision of potential resources.

If the Federal Trade Commission is going to take over that work one or other agency would seem superfluous, coming within the scope of the "economies to be effected by abolishing overlapping expenditures," and the much promised coordination of Governmental bureaus.

Instead, if the oil industry can judge from its own experience, the trend seems to be continually in the direction of more bureaucracy, more reports, and increased expense upon industry and business in assembling data and filling forms for filing cases at Washington.

There is the Geological Survey with its reports on production.

There is the Bureau of Mines with its reports on manufacturing petroleum products.

There is the Bureau of Commerce with its reports on imports and exports.

These serve a useful purpose but when they are duplicated or supplemented by a dozen other investigations, interrogatories, questionnaires and the like, the ordinary business man finds too much of his time or the time of those he has to pay taken up with what he regards as foolishness.

If the purpose at Washington is to get the facts about the oil industry the business-like course would have been to entrust the work to one central body covering every angle of the matter. The Geological Survey and the Bureau of Mines, by experience and technical equipment, are the natural agency for such work but instead we find an investigation by the Federal Trade Commission, another by the Department of Justice, an investigation or two by Senate committees, an inquiry by a presidential oil commission, and, of course, the inquisitorial activities of the governors and attorneys general of any of the 48 States who feel like it.

And then the Income Tax division of the Treasury Department has its own inquiry into depletions, etc., calling for further legal and accounting expenditures by the oil industry.

Still there are people who talk about regulating the oil business. If there is any business in the country that is suffering more from a surfeit of regulation what is it?

The truth is that the oil business has been a chief target for the socialistic and bureaucratizing tendency of the age.

That is the point overlooked by the vast majority of those who have clamored for the extension of Governmental interference into business; that there is nothing to choose between socialism and bureaucracy. They are in principle and effect the same thing under different names.

Each aims at transferring control of industry and business from those who operate them to the State. Bureaucracy is a self-expanding and self-perpetuating system. Give it an inch of authority and it will seize a mile. Allow it to demand one report and it will demand a thousand. The more reports the more bureaus, the more employes, the more power, until today both our republic and our democracy are in danger of being overwhelmed by the top-weight of bureaucracy.

Something of this was sensed by the people at the recent election when they repudiated the chief advocates of further Government interference with business. As the bulk of the people begin to realize the full import of this tendency toward bureaucracy the repudiation will become even more sweeping.

We have prided ourselves as a nation upon our personal liberty and freedom from Governmental oppression. Yet year by year, of late, we have surrendered our privileges to bureaucratic control until we are enmeshed in red tape and regulation on every side.

The energy we should be free to devote to our daily labor is spent answering questionnaires and filling in forms. The money we earn is being confiscated for a thousand and one fads and follies that have nothing to do with the science of Government. We are being increasingly hedged around with regulations and restrictions that bind us hand and foot.

And through it all we cling to the tradition of being the freest people on earth. How long shall we be if this trend towards bureaucracy as oppressive and inquisitorial as that of the most absolute monarchy is to be tolerated?

The publication of the income tax returns is just an example of where we are heading. From that to broadcasting the details of every man's business affairs is but a step. We are getting a long way from the proud constitutional protection against search and seizure.

The oil industry is particularly sensitive to this growing invasion of bureaucratic interference, because it has been peculiarly afflicted by it.

Regulation of industrial and business relations by law should be left to the courts, not handed over to appointive commissions, bureaus and agencies armed with questionable authority, too often exercised irresponsibly.

The "country that is governed least is governed best." When Government ceases to be the servant of the people and becomes its master freedom vanishes.

These are hopeful signs that the American people are awaking to what has been going on and have decided to call a halt. That hope encouraged by the recent vote has already given a stimulus to business and industry all over the country.

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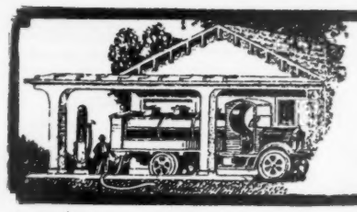


TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, Nov. 18

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Chicago District—				
†100 gals. or more	13.0	...	16.0	11.0

Tank wagon prices on April 10, 1922; g. up 1½c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c, k. down 1c; Oct. 10, g. down 2c; Oct. 21, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 29, g. up 2c; Jan. 12, 1924, g. up 2c, k. up 1c; Feb. 5, g. up 2c, k. 1c; July 18, g. down 1c; July 30, g. and k. down 1c; Sept. 12, g. down 2c.

Decatur, Ill.	13.2	...	15.2	11.5
East St. Louis	12.1	...	14.35	10.6
Joliet	13.4	...	15.4	11.7
Peoria	13.0	...	15.0	11.5
Quincy	13.2	...	15.2	11.3
Davenport, Ia.	13.5	...	15.5	11.9
Des Moines	13.5	...	15.5	11.9
Keokuk	13.5	...	15.5	11.9
Sioux City	13.0	...	15.0	11.5
Duluth, Minn.	14.5	...	16.5	12.6
Minneapolis	14.2	...	16.2	12.6
La Crosse, Wis.	14.2	...	16.2	12.4
Milwaukee	13.1	...	15.1	11.3
Madison	13.3	...	15.3	11.5
Detroit, Mich.	13.8	...	15.8	12.2
Grand Rapids	13.7	...	15.7	12.1
Saginaw	13.9	...	15.9	12.3
Evansville, Ind.	15.0	2.0	17.0	11.5
Fort Wayne	15.4	2.0	17.4	11.9
Indianapolis	15.2	2.0	17.2	11.7
South Bend	15.4	2.0	17.4	11.9
Fargo, N. D.	15.9	1.0	17.9	14.6
Huron, S. D.	17.0	2.0	19.0	13.1
Sioux Falls	15.0	2.0	17.0	12.6
*Kansas City, Mo.	13.9	1.0	15 9	10.3
Springfield	13.8	...	15.8	11.2
*St. Louis	12.6	0.5	14.9	11.0
*St. Joseph	13.0	0.5	15.0	10.9
Wichita, Kans.	12.8	...	14.8	9.8
Bartlesville, Okla.	14.4	...	16.4	9.9

*City tax.
†Tank wagon price on less than 100 gallons, 14c.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Newark, N. J.	13.5	...	....	13.0
Atlantic City	13.5	...	....	13.0
Annapolis, Md.	15.0	2.0	17.0	12.0
Baltimore	15.0	2.0	17.0	11.0
Cumberland	15.0	2.0	17.0	12.5
Washington, D. C.	16.0	2.0	18.0	12.5
Norfolk, Va.	17.0	3.0	19.0	13.5
Petersburg	17.0	3.0	19.0	13.5
Danville	17.0	3.0	19.0	13.0
Richmond	17.0	3.0	19.0	13.5
Roanoke	17.0	3.0	19.0	13.5
Keyser, W. Va.	15.0	2.0	....	13.5
Charleston	16.0	2.0	....	12.5
Parkersburg	16.0	2.0	....	13.5
Wheeling	16.0	2.0	....	13.5
Charlotte, N. C.	15.0	3.0	....	13.5
Hickory	15.0	3.0	....	13.5
Mt. Airy	15.0	3.0	....	13.5
Salisbury	15.0	3.0	....	13.5
Charleston, S. C.	15.5	3.0	....	14.0
Columbia	15.5	3.0	....	14.0

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Atlanta, Ga.	17.0	3.0	20.0	13.0
Augusta	17.0	3.0	20.0	13.5
Macon	17.0	3.0	20.0	14.5
Savannah	14.0	3.0	17.0	13.0
Birmingham, Ala.	15.0	2.0	18.0	14.5
Mobile	14.0	2.0	17.0	12.0
*Montgomery	16.0	3.0	19.0	15.5
Clarksdale, Miss	15.0	3.0	18.0	12.0
Jackson	15.0	3.0	18.0	10.0
Natchez	14.5	3.0	17.5	11.5
Vicksburg	14.5	3.0	17.5	11.5
Jacksonville, Fla.	15.0	3.0	18.0	13.0
Miami	17.0	3.0	20.0	14.5
Pensacola	15.0	3.0	18.0	13.5
Tampa	15.0	3.0	18.0	13.0
Lexington, Ky.	16.0	3.0	19.0	14.0
Covington	15.0	3.0	18.0	14.0
Louisville	15.0	3.0	17.0	12.0

*In addition to State tax of 2 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and ½ cent on kerosene.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
New Orleans, La.	13.5	2.0	15.5	9.0
Alexandria	14.5	2.0	16.5	13.0
Baton Rouge	13.0	2.0	15.0	11.5
Lake Charles	14.5	2.0	16.5	13.0
Shreveport	14.5	2.0	16.5	13.0
Memphis, Tenn.	14.0	2.0	16.0	14.0
Chattanooga	15.0	2.0	17.0	14.5
Knoxville	16.5	2.0	18.5	16.0
Nashville	15.5	2.0	17.5	13.5
Bristol	17.0	2.0	19.0	13.5
Little Rock, Ark.	17.0	4.0	19.0	13.0

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
San Francisco	15.0	2.0	18.0	15.5
Los Angeles	13.5	2.0	16.5	15.5
Fresno	15.5	2.0	18.5	17.5
Reno, Nev.	18.5	2.0	21.5	19.0
Portland, Ore.	16.0	3.0	19.0	16.5
Seattle, Wash.	15.0	3.0	18.0	16.5
Tacoma	15.0	3.0	18.0	16.5
Spokane	19.0	3.0	22.0	20.5
Phoenix, Ariz.	21.0	3.0	24.0	21.5

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Basin, Wyo.	17.0	1.0	....	14.0
Casper	15.0	1.0	17.0*	12.0
Cheyenne	16.5	1.0	18.5	13.5
Cody	18.0	1.0	....	15.0
Lander	17.0	1.0	....	14.0
Albuquerque, N. M.	19.0	1.0	21.0	15.0
Salt Lake, Utah	20.0	2.0	22.0	17.0
Ogden	20.0	2.5	22.0	17.0
Denver, Colo.	14.0	2.0	16.0	13.5
Glenwood Spgs.	20.0	2.0	....	17.5
Pueblo	16.0	2.0	18.0	13.5
Billings, Mont.	18.5	2.0	20.5	14.5
Butte	20.0	2.0	22.0	16.0
Great Falls	20.0	2.0	22.0	16.0
Helena	20.0	2.0	22.0	16.0
Miles City	19.5	2.0	21.5	15.5
Missoula	21.0	2.0	23.0	16.0
Boise, Idaho	21.5	2.0	23.5	19.0
Idaho Falls	21.0	2.0	23.0	18.5

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
*Pittsburgh, Pa.	14.0	...	19.0	14.0
*Philadelphia	14.0	...	19.0	14.0
*Scranton	14.0	...	19.0	14.0
*Allentown	14.0	...	19.0	14.0
*Altoona	14.0	...	19.0	14.0
Dover, Del.	16.0	2.0	19.0	14.0
Wilmington	16.0	2.0	19.0	14.0
Hartford, Conn.	14.0	1.0	17.0	13.0
New Haven, Conn.	14.0	1.0	17.0	13.0

*Pennsylvania tax of 2 cents is collected by the dealer and paid by him direct to the State.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Albany, N. Y.	15.0	...	....	13.0
*New York	15.0	...	....	13.0
Buffalo	13.0	...	....	12.0
Rochester	15.0	...	....	13.0
Syracuse	15.0	...	....	12.0
Boston, Mass	14.0	...	....	13.0
Providence, R. I.	14.0	...	....	13.0
Augusta, Me.	15.0	1.0	....	13.0
Manchester, N. H.	16.0	2.0	....	13.0
Burlington, Vt.	15.0	1.0	....	13.0

*Price in steel barrels.
Note: Standard Oil Co. of New York does not generally quote service station prices in its territory. In most cases the service station price is 2 or 3 cents higher than tank wagon price.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Omaha	11.0	...	13.0	11.5
Crawford	14.0	...	....	12.25
McCook	14.75	...	16.75	13.0
Norfolk	13.75	...	15.75	12.0
North Platte	14.75	...	16.75	12.75
Scotts Bluff	14.25	...	16.25	12.25

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Dallas, Tex.	10.0	1.0	13.0	10.0
Fort Worth	10.0	1.0	14.0	10.0
Houston	10.0	1.0	14.0	10.0
San Antonio	10.0	1.0	12.0	10.0
El Paso	10.0	1.0	14.0	11.0
Muskogee, Okla.	12.0	2.5	17.0	11.0
Oklahoma City	12.0	2.5	15.0	11.0
Tulsa	12.0	2.5	15.0	11.0
Ft. Smith, Ark.	15.0	4.0	18.0	12.0
Little Rock	17.0	4.0	19.0	11.0
*Texarkana	16.0	4.0	19.0	10.0

*Does not include 1c additional tax.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
All Ohio points	15.0	...	17.0	14.0

TANK WAGON CHANGES

November 14.—Continental Oil Co. reduced gasoline tank wagon and service station prices at Denver 2 cents.

November 12. — Magnolia Petroleum Co. advanced gasoline service station prices 2 cents at Fort Worth, Tex.

GROUP 3 PRICES CONTINUE TO ADVANCE

(Continued from Page 22)

which cannot be passed without notice is the payment of premiums by independent purchasers and refiners. During the past week it was announced that the Bolene Refining Co. and the Garber Refining Co. had started paying $1.65 per barrel for oil from the Garber Field, which belongs to the Sinclair Oil & Gas Co. This is 40 cents above the present top price for ordinary Mid-Continent crude, which brings $1.25. It is to be remembered, however, that the Garber crude is 44-46 gravity and under ordinary circumstances is worth more money to the skimming plant operator.

Premiums Reported

Premiums of 15 cents and 25 cents are reported being paid to some producers in the Tonkawa Field by a few independent refiners with connections in that field. Tonkawa oil, however, is exceptionally high in gravity. It is also reported that an independent pipe line company is paying a 10-cent premium for oil from a new well near Mounds. Premiums in older areas were reported from many sources, but many of these reports when run to earth were found to be mere rumors.

It is true that premiums are being paid by a number of buyers, but it is also true that the rush to pay premiums has not been as precipitate as it has in similar situations in the past. The refiners are operating with considerably more caution and although they increased their operations noticeably during October, it is thought by many students they will give serious consideration to the mistakes of the past before starting a real scramble for crude.

One reliable producer in touch with the situation in Oklahoma declared that "reliable refiners can get all the oil they want at the market price in Oklahoma." This statement may be slightly overoptimistic, as the crude situation is particularly tight in some regions. A noticeable letup on refinery throughput, following a decreased demand due to cold weather would greatly relieve the crude situation, a number of observers assert. The lessened demand for refined products, if followed by a decrease in amount of crude charged to stills, might put off the heavy increase in demand for crude until spring when it could be handled to better advantage, they say.

The possibility that the pressure on the Mid-Continent crude supply may come from other sources is advanced by some men. It is said several large concerns, operating principally in Texas, are drawing on their storage oil to fill their requirements. It is also reported premiums of 10 and 15 cents are being paid by practically every independent refiner for crude in the Burkburnett, Electra and Archer County regions of North Central Texas. The supposition is advanced by some observers that the advance to the Mid-Continent crude oil market may come from the Magnolia Petroleum Co., The Texas Co., or the Humble Oil & Refining Co., rather than the two dominant Oklahoma purchasers.

Fuel oil in Group 3 advanced to a price of $1.05 for most grades during the week. Its scarcity was becoming acute with prospects of continued good consumption. Gas oil picked up during the early part of the week with lowest quotations set at 2⅞ cents by most refiners. Straw distillate showed little change in tone, the burner demand in the Central States failing to increase appreciably during the week. Kerosene continued weak with very little interest being displayed.

No changes were made in neutrals, a slight tendency toward lower prices being noticed, however. Underbidding from some sources was reported by a few refiners. Steam refined cylinder stocks showed an improved tone with rumors of export demands adding strength to the domestic demand. Bright stocks likewise were strong with some makers sold up until January 1. Wax continued to surprise a number of refiners with a substantial increase in prices during the week. Reports that the wax stocks were lower than they have been since 1917 have done much to bring up the price for this product. Some refiners are reported sold up until March, 1925, and offers for all of the 1925 product have been reported.

CALIFORNIA MARKET WAITS DEVELOPMENT

LOS ANGELES, Cal., Nov. 15.—The past week has been rather quiet in the California market in particular and the Pacific Coast market in general. The consumption of gasoline is naturally decreasing and this, with the 2½-cent cut, has done much to put the smaller refiners and marketers in an exceedingly pessimistic frame of mind. The well established companies too are adversely effected by this cut and all around there is a very noticeable indisposition to take on extended new commitments in the sale of gasoline or engine distillate in large quantities on a contract basis.

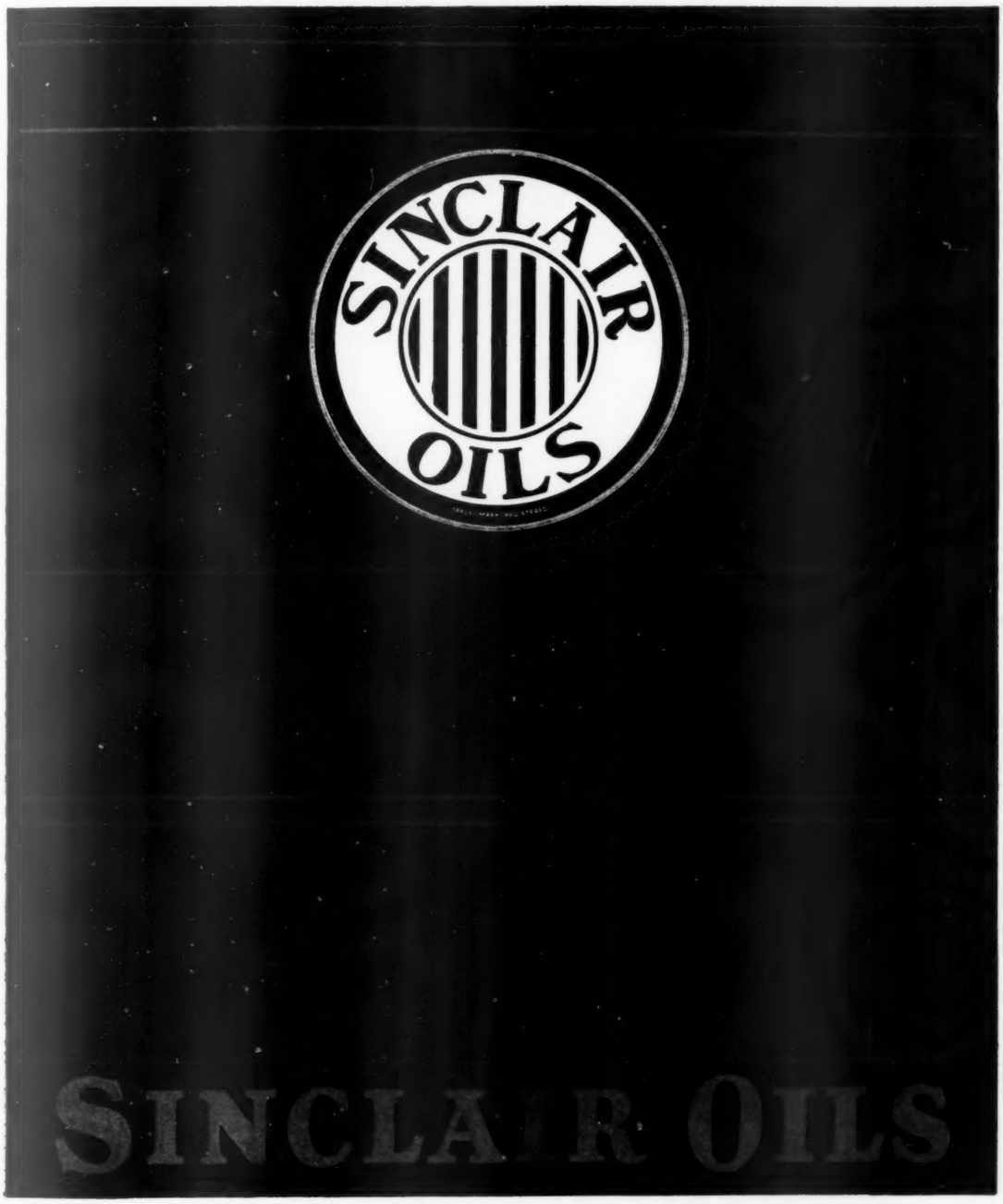
There is a decided inclination to wait a little while to see whether there will be another cut in price. With crude production on the toboggan and the movement of California petroleum products to the Atlantic Coast and Europe continuing in satisfactory volume there is gradually being released some storage space which can be utilized by the stronger companies for the storage of raw tops and crude. This is infinitely more desirable than the dumping of high grade refined products in this low market, provised the financial burden of additional stocks can be borne without too much strain.

No price changes have come within the week with the exception of one in engine distillate. This commodity was dropped ½ cent by all marketers to bring it in line with gasoline. At present the refinery price of 445 end point engine distillate is 6 to 6½ cents per gallon without including the 2-cent State automotive fuel tax. Heavier engine distillate, say with an end point of approximately 480 degrees, can be purchased (without tax) at 5½ to 5¾ cents.

Fuel oil remains strong on the Pacific Coast. This is attested to by the bids received by the United States Navy and Shipping Board for their 1925 requirements. Fuel oil to commercial interests continues to move at $1.40 per barrel at tidewater from Los Angeles or San Francisco.

GULF CO. ADVANCES PRICES

NEW YORK, Nov. 15.—Gulf Refining Co. today advanced its tank wagon prices 1 cent per gallon throughout its territory, including every State on the Atlantic Seaboard. The new prices quoted by the Gulf are the same as those recently put into effect by the Standard Oil Co. of New York, in New York and New England; and are 1 cent higher than the tank wagon prices quoted by the Standard Oil Co. of New Jersey in New Jersey and Maryland. Standard of New Jersey will probably raise its prices to conform to the Gulf schedule next week. The advances are attributed to unexpectedly heavy consumption during the last five or six weeks, which have reduced stocks considerably.



ONE of our responsibilities, represented by the Sinclair trademark, is to maintain a supply of crude oil which amply protects our sale of refined products. This is done through our affiliated companies, and gives our customers a feeling of security that their orders will be filled promptly.

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Production of Gasoline During 1924

Production Plus Imports Will Probably Exceed Consumption Plus Exports Less Than 1 Per Cent, Increasing Stock But Two Days' Production

By Charles E. Bowles

The year 1923 is usually referred to as an "abnormal" year in the oil business—but by the end of 1924 we will have "taken up the slack" and except for heavy stocks of crude oil and finished products, will be about as nearly normal as the industry ever gets.

If the great outstanding fact of 1923 was the enormous production of crude oil, the other great outstanding fact was the enormous consumption of gasoline as our production plus imports exceeded our consumption plus exports by only 2½ per cent.

In order to get the background of what has really taken place in the first nine months of 1924, and of how the industry has slowly but surely solved part of the problems left over from 1923, let us analyze the condition of the gasoline industry during the first nine months of 1923.

On January 1, 1923, we had on hands 883,793,000 gallons of gasoline. During the next nine months we imported 129,305,000 gallons and produced 5,620,157,000 gallons. We exported 653,302,000 gallons, consumed 5,007,248,000 gallons here at home and on September 30 had a stock of 972,704,000 gallons on hand.

Situation Analyzed

Set up in tabular form, the statement would be as follows:

	Gallons
Stock, Jan. 1, 1923	883,793,000
Imports	129,305,000
Domestic production	5,620,157,000
Total	**6,633,255,000**
Exports	653,302,000
Domestic consumption	5,007,248,000
Stock Sept. 30, 1923	972,705,000
Total	**6,633,255,000**

Note that from January 1 to September 30 the stock of gasoline increased 88,912,000 gallons, or a little more than 10 per cent. The highest stock was at the close of April, 1,336,417,000 gallons, with only a slight drop at the end of May. In the 122 days from June 1 to September 30 we consumed almost exactly 3,000,000,000 gallons and produced 2,985,000,000 gallons.

Omitting for the moment what happened the last three months of 1923 we will compare the first nine months of 1924 with the first nine months of 1923.

Our stock of gasoline January 1, 1924 was 1,074,899,000 gallons; we imported 88,162,000 gallons and produced 6,643,336,000 gallons here at home.

We exported 923,575,000 gallons, consumed 5,653,216,000 gallons and our stock on hand September 30 was 1,229,605,000 gallons.

In tabular form this would appear as follows:

	Gallons
Stock Jan. 1, 1924	1,074,899,000
Imports	88,162,000
Domestic production	6,643,336,000
Total	**7,806,397,000**
Exports	923,575,000
Domestic consumption	5,653,216,000
Stock Sept. 30, 1924	1,229,606,000
Total	**7,806,397,000**

Comparing the items for the first nine months of 1923 with the first nine months of 1924 we find that the stock of gasoline increased 89,000,000 gallons in 1923—and 155,000,000 gallons in 1924.

Great Excess of Exports

The excess of exports over imports in 1923 was 523,997,000 gallons—in 1924 it was 835,413,000 gallons. During the first nine months of 1924 the imports were 41,143,000 gallons less than for the same period in 1923—but the exports were 270,273,000 gallons more. In other words, our imports dropped over 32 per cent, while our exports increased over 41 per cent.

In the first nine months of 1923 the excess of production over consumption was 612,909,000 gallons, compared with 990,110,000 gallons in 1924. But the difference between the excess of 1924 and the excess of 1923—377,201,000 gallons was coincident with an increase in exports in 1924 of over 270,273,000 gallons.

In comparing the first nine months of 1924 with the corresponding period of 1923 we find that we increased our stocks 75,794,100 gallons more in 1924 than in 1923—that we increased the excess of exports over imports by 311,416,000 gallons—and that we increased the excess of production over consumption by 377,211,000 gallons.

Items—	1923—gals.	1924—gals.
Increase in stocks	88,912,000	154,706,000
Excess of exports over imports	523,997,000	835,413,000
Excess of production over consumption	612,909,000	990,120,000

Turning to the last three months of 1923 we find that from October 1 to December 31 the stock of gasoline increased from 972,705,000 gallons to 1,074,899,000 gallons—about 10 per cent.

Stock Oct. 1, 1923	972,705,000
Imports	62,008,000
Domestic production	1,935,787,000
Total	**2,970,500,000**
Exports	217,814,296
Domestic consumption	1,677,786,597
Stock Dec. 31, 1923	1,074,899,000
Total	**2,970,500,543**

The exports exceeded the imports by 155,806,000 gallons compared with 523,997,000 gallons for the first nine months of 1923.

The production exceeded the consumption by 268,001,000 gallons, compared with 613,909,000 gallons for the first nine months of 1923.

Estimates for 1924

On October 1, 1924, the stock of gasoline on hand was over 1,229,000,000 gallons and in order to set up a set of figures so as to get a comparison between what actually happened during the last three months of 1923 and what will probably happen during the last three months of 1924 it is necessary to make estimates for five of the entries as follows:

	Gallons
*Stock Oct. 1, 1924	1,229,000,000
†Imports	40,000,000
†Domestic production	2,100,000,000
Total	**3,369,000,000**
†Exports	300,000,000
†Domestic consumption	1,950,000,000
†Stock Dec. 31, 1924	1,119,000,000
Total	**3,369,000,000**

*Actual. †Estimate.

The estimate of imports for the last three months of 1924—40,000,000 gallons—brings the total for the year to about 128,000,000 gallons as compared with 191,000,000 gallons for 1923. The first nine months of 1924 indicate large decreases in the imports of gasoline for the year.

The estimated production for the last three months—2,100,000,000 gallons—brings the total for the year to 8,743,000,000 gallons, compared with 7,555,945,000 gallons for 1923. In the first nine months of 1924 the production increased about 18 per cent over the first nine months of 1923, and if this percentage holds for the last three months, the year's production will be about 8,750,000,000 gallons.

The estimate of exports for the last three months of this year—300,000,000 gallons—follows closely the actual increase during the first nine months—41 per cent.

During the first nine months of 1924 the consumption of gasoline increased about 11 per cent over the first nine months of 1923. A proportionate increase during the last three months of 1924 would indicate that the consumption would be about 1,950,000,000 gallons. This would bring the consumption for 1924 to a total of over 7,603,000,000 gallons, compared with 6,685,036,000 gallons in 1923.

This Year's Stock

On this basis the stock on hand December 31, 1924, will be in the neighborhood of 1,119,000,000 gallons, compared with 1,074,899,000 gallons at the close of 1923. At the close of the fifth nine months of 1924 the stock of gasoline on hand averaged 47 per cent higher than the stock at the close of the first nine months of 1923. Present indications are, however, that the year 1924 will close with only slightly higher gasoline stocks on hand than at the close of 1923.

Taken by and lare, present indications are that the year 1924 will check up with 1923 about as follows: imports will decrease around 33 per cent; exports will increase around 40 per cent; production will increase about 15 per cent; consumption will increase around 12 per cent, while the stock on hand at the close of the year will be less than 1 per cent over the stock at the close of 1923. Set up in tabular form the items would be:

Imports	decrease 33%
Exports	increase 40%
Production	increase 15%
Consumption	increase 12%
Stock Dec. 31	increase ⅛%

Two Important Factors

In this connection two factors within the industry have a very definite bearing on the gasoline situation: (1) the stock of crude oil in pipe lines and at tank farms; (2) the stock of crude oil and unfinished oils at refineries.

The pipe line and tank farm stocks were as follows:

	Barrels
Jan. 1, 1923	252,410,000
Sept. 30, 1923	314,493,000
Dec. 31, 1923	334,774,000
Sept. 30, 1924	363,700,000
Dec. 31, 1924	372,000,000

with the stock at the close of 1924 estimated.

The stocks of crude oil and unfinished oils at refineries were as follows:

Jan. 1, 1923	56,836,000
Sept. 30, 1923	63,400,000
Dec. 31, 1923	64,809,000
Sept. 30, 1924	72,372,000
Dec. 31, 1924	75,000,000

with the stock at the close of 1924 estimated.

From January 1, 1923 to September 30, 1924, the stock of gasoline rose from 883,793,000 gallons to 1,229,605,000 gallons—during the same period the stock of crude oil in pipe lines and at tank farms increased from 252,410,000 bbls. to 362,238,000 bbls., and the stock of crude and unfinished oils at refineries increased from 56,836,000 bbls. to 72,372,000 bbls.

Thus we see that while crude oil has been backing up in the pipe lines and at the tank farms it has also backed up at the refineries, while there has been an enormous backing up of gasoline.

Referring to the table "Gasoline in 1924," you will note that the peak of consumption came in August with over 819,000,000 gallons, while the peak of production came in May, with over 780,000,000 gallons.

Production and Consumption

Checking monthly production against monthly consumption it will be noted that during each of the first six months the production of gasoline was greater than the consumption and that during June, July and August the consumption was greater than the production. In September the production again exceeded the consumption.

During the first nine months of this year we produced over 990,000,000 gallons more gasoline than we consumed. During the same period we exported 835,000,000 gallons more than we imported. Therefore, during this period our stocks increased 155,000,000 gallons, or from 1,075,000,000 gallons to 1,229,000,000 gallons.

Aside from the slowly increasing and now seemingly heavy stocks of gasoline that the industry has been carrying for the last two years, there was a marvelous "balance" in 1923 between production, consumption, imports and exports as the following tabulation shows:

Stock Jan. 1, 1923	883,793,000
Imports	191,313,000
Production	7,556,946,000
Total	**8,631,051,000**
Exports	871,116,000
Consumption	6,685,036,000
Stock, Dec. 31, 1923	1,074,899,000
Total	**8,631,051,000**

Adding the production and imports and subtracting from the total the sum of the consumption and exports leaves 191,106,000 gallons which is the amount that was added to stock during the year 1923. In other words the production of gasoline during the year, plus the imports, exceeded the consumption plus the exports by only 2½ per cent.

Remarkable Balance

The average daily production of gasoline during 1923 was slightly less than 21,000,000 gallons and as only 191,106,000 gallons were added to stock during the year it follows that our production, plus imports, was balanced so nicely to our consumption plus exports that the excess amounted to only about nine days' production.

Using the estimates for the last three

(Continued on Page 132)

GASOLINE IN 1924

Month	Stock first day of	Domestic Production	Imports	Exports	Domestic Consumption	Stock last day of
January	1,074,899,650	695,322,500	19,309,197	88,823,007	498,160,950	1,202,547,390
February	1,202,547,390	677,740,318	5,189,928	103,546,045	407,709,693	1,374,221,896
March	1,374,221,898	743,248,292	1,044,919	85,090,507	462,020,385	1,571,404,667
April	1,571,404,667	754,773,232	7,627,299	116,941,248	609,077,546	1,607,786,404
May	1,607,786,404	780,194,019	14,265,697	96,879,769	658,006,516	1,647,359,835
June	1,649,953,755	737,080,701	13,828,926	115,330,959	686,674,204	1,598,858,219
July	1,598,858,219	741,974,813	7,553,863	87,797,104	794,030,852	1,466,558,939
August	1,470,923,201	755,779,688	16,124,923	112,339,075	819,467,892	1,311,020,845
September	1,311,020,845	750,264,418	3,217,278	116,828,035	718,068,623	1,229,605,883
Date	January	To Sept. 30	To Sept. 30	To Sept. 30	To Sept. 30	Sept.
1924	1,074,899,650	6,643,336,163	88,162,030	923,575,299	5,653,216,661	1,229,605,883
1923	883,792,861	5,620,157,946	129,305,026	653,302,318	5,007,248,683	972,704,832

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THE NATIONAL SUPPLY COMPANIES

Gulf Coast Oil Operations

By P. L. McGreal

Mutual Oil Co. completed well in Orange Pool which flowed 4,300 bbls. initially. Numerous completions scattered through nearly all pools of area. Jim Hogg County well still flowing 1,100 bbls. daily. Well in Pierce Junction Pool starts at 500 bbls. Many wells drilling.

HOUSTON, Tex., Nov. 17.—Interest during the week centered in the Orange Pool where the Mutual Oil Co. got a well flowing 4,300 bbls. initial after deepening to 4,757 feet. It is on the north side in old territory, but a deeper sand than heretofore found in that section of the pool. The oil shows 29 gravity and 90 degrees temperature and at the close of the week the well was making 4,000 bbls. Snowden & McSweeney got a 500-bbl. well at Pierce Junction, the first producer of consequence in that pool in two years.

The Henne, Winch & Farris well in Jim Hogg County is credited with a daily average of better than 1,100 bbls. It came in October 24. The Texpata Pipe Line Co. ran as high as 1,800 bbls. from the tanks one day to storage at Mirando City on the Tex-Mex Railway.

The Vacuum Oil Co.'s well near Lockport, Calcasieu Parish, Louisiana, is still making an average of 1,400 bbls. It came in September 8 last and has been flowing steadily since. When it was about two weeks old it flowed as high as 5,200 bbls. During the past 10 days it shows from 30 to 40 per cent sediment and water. The sand was found at 3,875 feet. The Vacuum and Gulf Companies are drilling No. 1 Gray there now below 4,800 feet, or about 1,000 feet lower than where the sand was found in the producer. Their No. 1 Bordages is below 3,165 feet and No. 1 Farquar at 1,380 feet.

Nearly every pool in the Gulf Coast territory is represented in the list of wells completed during the week, which number 18, seven of these either being old holes drilled deeper, or worked over and new screens set. The new production aggregates 6,145 bbls. with four dry holes and one salt water well. At the close of the week nine wells were bailing. Completions in the southwest fields total 5, with only 650 bbls. new production.

Outside of the pools proper, The Texas Co. abandoned No. 1 Ott, in Liberty County at 3,186 feet and has a location for No. 2, 7 miles west of Batson. The Stratton Ridge Oil Co. quit No. 13 Dannebaum on the northeast side of Stratton Ridge Dome in Brazoria County in salt water at 1,300 feet and is rigging No. 14, located 300 feet northwest.

Daily Average Production

The estimated daily average gross production of the Gulf Coast Pools and southwest fields combined for the week is placed at 126,360 bbls. against an estimate of 128,095 last week. The estimate for the Coastal Pools is 85,425 bbls. against 86,660 bbls. last week, or a decline of 1,275 bbls. Big Creek, Goose Creek, Humble, Hull, West Columbia and Vinton Pools show decreases compared with last week, which more than offset the increases in the Orange, Blue Ridge and Pierce Junction districts. In the Orange Pool, for instance, the Mutual Oil Co.'s No. 7 Chesson, credited with 3,500 bbls., quit flowing and is being cleaned out. The gross for the southeast fields is placed at 40,935 bbls., a decline of 500 bbls. for the week.

The following is the estimate for each district:

District—	Gross Bbls.
Batson	1,650
Blue Ridge	980
Barber Hill	140
Big Creek	5,500
Dayton	95
Damon Mound	1,246
Edgerly (La.)	495
Goose Creek	11,100
Humble	5,250
Hull	16,100
Jennings (La.)	875
Markham	190
Orange	13,565
Pierce Junction	500
Spindletop	1,275
Saratoga	1,480
Sour Lake	4,245
Vinton (La.)	5,900
Welsh-Anse La Bute	90
West Columbia	13,150
*Miscellaneous	1,600
Total	85,425
Southwest Fields—	
Luling	32,000
Laredo	4,200
Somerset	2,550
Calliham	540
Rockdale-Minerva	485
*Miscellaneous	1,160
Total	40,935
Grand total	126,360
Grand total last week	128,095
Decrease	1,735

*Includes Vacuum well at Lockport (La.) credited with 1,400 bbls. Balance scattered between Nacogdoches, High Island, Hockley, Big Hill and other places.

Grades of Crude

The above figures are estimated gross output. Approximately 2,500 bbls. per day is used for fuel for drilling rigs in the Coastal Pools, which would reduce the net average to around 82,500 bbls. output. About one-half of the total production grades as Class A and one-half of Class B. The A grade commands a premium of 25 cents over Grade B. All the pipe lines except The Texas Co. divide the runs into grades. The Texas Co. runs all Coastal crude as Grade A. The A grade is defined as having not less than 100 seconds viscosity at 100 degrees Fahrenheit-Saybolt. The sulphur content is limited to 4 per cent and the Baume gravity not over 25 at 60 degrees Fahrenheit. The cold test of distillates having a viscosity of 1,000 seconds at 100 degress Fahrenheit shall not be over 5 degrees F. A. S. T. M. method.

Grade B embraces all coastal crudes which do not meet the tests for A grade.

Coastal Operations

A total of 107 wells are drilling in the Gulf Coast pools of South Texas and South Louisiana, with 14 derricks standing. Tests drilling in the semidefined saline domes and outside of the pools number 26, with eight derricks standing. The recent advance of 25 cents in credit balance quotations has stimulated activity and more work is scheduled after January 1. The introduction of the Torsional balance method and of the Seismograph or "dynamiter," as it is called, by the major companies, has changed wildcatting methods in the saline dome regions. The major companies now block up big tracts on and around probable domes, which is leased with a provision that permits exploration work by either of the two methods mentioned to determine if it is saline uplift. The tests by the torsional or seismograph are followed by the drilling of shallow formation tests with a gasoline operated small rotary rig. These tests are drilled to from 1,000 to 1,500 feet and the formations are submitted to paleontologists who are a part of the geological staff of every large company. These scientists determine if the formations are in their proper sequence geologically and then a deep test or two is drilled to find the sands carrying oil.

The territory south of China in Jefferson County is now being explored and Matagorda County has been explored, both with the scientific systems and by drilling formation tests.

Scouts now follow the scientists handling the Torsional machine and the seismograph, just as in other days they followed the rotary and watched drilling depths and formations. With this difference, however: One cannot tell what the machines are recording as far as actual conditions are concerned, but if the equipment is kept long in one locality it is considered significant, the presumption being that the recording of the machine is being checked and rechecked to insure accuracy.

Leasers Are Active

Leasers are still working among landowners in Brazoria County, northeast of the West Columbia Pool, as mentioned in last week's review. The Gulf Production Co. has now joined in the leasing activity in that section and has acquired considerable acreage. The Rycade, Humble, Texas and other companies are represented among the lease owners in that part of Brazoria County, but the holdings of the Rycade Co. are the largest, embracing over 6,500 acres, stretching north into Fort Bend County.

In addition to the wells completed in the Orange Pool, already referred to, the Brownie Babbittee Oil Co. has a 25-bbl. pumper in No. 4 Brown, on the southeast side, at 2,850 feet. The hole was drilled to 4,150 feet and was a failure. The casing was milled through and a screen set in a sand at the depth given. The American National Oil Co. is pulling liner from No. 1 Winifree, 1 mile east and north of production, which was bailed at 4,675 feet and showed salt water. The Humble Oil & Refining Co.'s No. 7 Winifree, completed last week as a 1,000-bbl. well at 3,910 feet is now flowing 750 bbls. per day.

The Rycade Petroleum Co.'s No. 1-E State land in Cow Bayou is drilling at 4,990 feet and No. 8 is fishing at 4,650 feet. No. 5-A is at 3,535 feet and No. 14 below 5,165 feet. The Gulf Production Co. has a couple of very deep holes there. No. 2 Hamman Consolidated is drilling below 4,970 feet and No. 8-A Kishi-Lang at 4,880 feet. No. 2 Chesson is below 4,000 feet. No. 1 Granger is drilling at 4,376 feet and No. 8 Pevito at 2,345 feet. No. 3 Chesson is deepening and No. 17 Hager fee is rigging. The Humble Oil & Refining Co. is offsetting the Mutual Oil Co.'s new well with No. 21 Chesson and the Mutual Company with No. 14 Chesson. The Humble Company's No. 8-B Chesson is at 3,446 feet. No. 11 Winifree is below 2,500 feet. The Brownie Babbittee Oil Co.'s No. 3 Brown is sidetracking at 4,135 feet and No. 5 McLean is working over. The Sun Co.'s No. 4 Brown is sidetracking below 4,500 feet and No. 2 Bellisle is drilling at 3,387 feet. The Supreme Oil Co.'s No. 3 Jackson is below 3,510 feet.

Hardin County Pools

In the Batson district, the Acorn Oil Co.'s No. 47 Paraffin is pumping 20 bbls. at 650 feet. S. R. Buchanan is bailing No. 78 Milhome at 1,055 feet and No. 80 at 950 feet.

The Ada Bell Oil Co.'s No. 81 Wise is drilling at 1,465 feet. W. B. Flynn's No. 2 Donohoe is at 2,390 feet. The East Batson Oil Co.'s No. 1 Texas is deepening at 1,095 feet. Cavitt and others No. 2 King is rigging.

In the Sour Lake Pool, the Lake View Oil Co.'s No. 4 Minor bailed salt water at 2,940 feet.

J. G. Barkley is rigging No. 3 Rogers there. The Texas Co.'s No. 237 fee is working over at 2,100 feet. The Sun Oil Co.'s No. 60 Bass & Eastham is drilling below 1,110 feet and E. C. Hankamer's No. 2 Brown is around 1,010 feet. J. H. Jackson's No. 3 trustee is at 965 feet and the Humble Oil & Refining Co.'s No. 38 Hardin-West at 2,570 feet. The Lake View Oil Co.'s No. 40 Hardin is rigging.

Liberty County Pools

In the Hull Pool, the Republic Production-Houston Oil Co.'s joint No. 91 Dolbear is flowing 500 bbls. at 2,500 feet. The Humble Oil & Refining Co.'s No. 10 Hooks-Spells is pumping 75 bbls. at 3,577 feet. The Gulf Production Co.'s No. 7 Scarborough was abandoned at 3,425 feet. It was a workover.

On the east side of the dome, the Republic-Houston Oil Co.'s No. 18 Dolbear is working over. No. 90 was drilled to 4,100 feet and got nothing. It is now sidetracking at 2,250 feet to test a sand higher. No. 93 Dolbear went to 4,150 feet and was a failure and is being sidetracked the same as No. 90. Both were drilled as deep as any tests on that side of the hill. No. 94 Dolbear is drilling at 2,387 feet. On the southeast, the Gulf Production Co.'s No. 8 Phoenix is working over. On the south side, the Humble Oil & Refining Co.'s No. 18 Guedry is rigging. The Empire Gas & Fuel Co.'s No. 16 Barngrover is drilling at 3,035 feet. The Texas and Vacuum Companies have a location for No. 4 Hannah on the southwest side. On the west side, the Humble Oil & Refining Co.'s No. 1-B Hannah is drilling at 3,125 feet. On the northwest side, the Mecom Oil Co.'s No. 6 Mecom is drilling below 4,200 feet. On the north side the Gulf Co.'s No. 13 Scarborough is deepening at 3,380 feet and its No. 2 Morris-Phillips to the east, is working over and fishing at 1,625 feet. The Hull Pool is the only dome with production on all sides of it.

The "Ford school acre" which has been in litigation for four years between the Yount-Lee Oil Co. and Houston men, was compromised during the week upon the payment of $25,000 by the Yount-Lee Co., which has four pumpers on the acre.

The case involved the validity of a title passing from a school board to the county commissioners, who in turn sold it to another party for $10. The case went to the Supreme Court on a certification, but was sent back to the lower courts for another trial, so the question at issue, so far as legal records are concerned, is still undecided. It involves the validity of a school board disposing of property deeded to it for school purposes and then relinquished, the money received for payment of the acre being used by the board in moving the school building to another location. The courts and the lawyers have been sidestepping the issue for four years, each court passing the buck on some technicality, so that the point at issue is still in doubt.

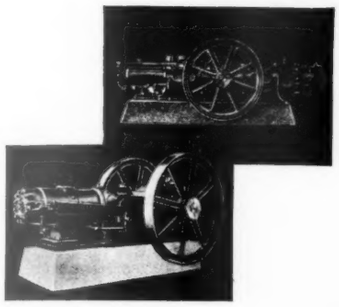
Harris County Pools

The Pierce Junction Pool, 8 miles south of Houston, got into the limelight when Snowden & McSweeney's No. 8 Cain came in flowing 500 bbls. at 3,950 feet. The Gulf Production Co.'s No. 10 Taylor there is bailing at 3,970 feet. It is an old hole drilled deeper. Both are on the east side of the dome.

In the deep sand section of the Humble Pool, Doctor Griffith's No. 1 Burt 50 acres, is drilling at 2,285 feet. It is on a lease formerly held by The Texas Co. and recently turned back to the owner. The Texas Co. has relinquished title to several tracts on the pool rather than drill them, according to the lease obligations and in other cases it has subleased, retaining an overriding royalty. Martin & Co. are drilling No. 29 Hermann, formerly the Invincible Oil Co. lease. Old wells are being worked over in the shallow sand section of the district.

In the Goose Creek Pool, the Southern Exploration Co.'s No. 8 Wright is pump

(Continued on Page 128)



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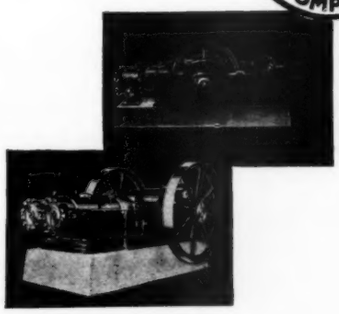
—the district superintendent which engines cause him the *least trouble in the course of a year.*

—the engineer on the job which engines *make his job easiest*



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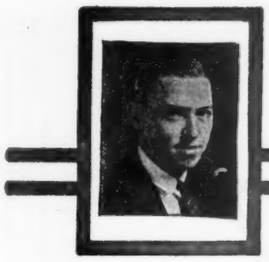

Oklahoma Field Operations

By C. D. Lockwood

Big wells in Tonkawa, Burbank, Cromwell and Papoose Pools, with deeper drilling of old wells in Tonkawa boosted production in Oklahoma at the close of the past week. Extensions to Cromwell and Papoose Pools are noted. One Burbank well caused brief sensation.

Big wells in the Tonkawa, Burbank, Papoose and Cromwell Fields caused a very considerable increase in the production of Oklahoma at the close of last week. An estimate made on Friday in each of several leading fields showed Wewoka, with 11,964 bbls.; Papoose, 24,000 bbls.; Cromwell, 50,072 bbls.; Burbank, 74,943 bbls.; Tonkawa, 99,492 bbls. of which 76,428 bbls. was coming from the deep sand. In each case the production had increased over the same day a week previously. The production figures given were for Friday only and were not an average for the week. Based on the above figures an estimate of the production of the whole State as of that day would put it around 525,000 bbls. while the average for the week would be below this.

Tonkawa's increase in production was partly due to the deeper drilling of wells already in. The Amerada Petroleum Corp.'s No. 34 Goltry, SW cor. SW NW, Section 34-25-1w, was increased to 5,133 bbls. at a total depth of 4,162 feet, 101 feet in the sand. No. 36 Goltry was also deepened and increased to 3,840 bbls. It is 85 feet in sand at a total depth of 4,080 feet. Numerous other wells in the field were recently deepened, details of which are given further on in this review.

It was a big week in the Cromwell and Papoose Pools. The completions were more than usually plentiful and some of the wells were notably good ones. There were also some disappointments. The west side of the Cromwell Pool was made to look better when the Prairie Oil & Gas Co.'s four tests along the east line of its leases, the southeast quarter of Section 8, came in with an aggregate of 4,000 bbls. a day while still drilling. These wells are directly south of the Gypsy's good well on the Replogle farm in the northeast quarter of Section 8. The Papoose Pool was extended a little to the northeast by the Prairie Oil & Gas Co.

Production in the Otoe Field in western Pawnee County is increasing steadily. Last week, with only 10 wells producing, the pool was making 8,964 bbls. a day. The Sinclair Pipe Line Co. was running 4,982 bbls. of the oil, the Magnolia Petroleum Co. 3,379 bbls. and the Marland Pipe line 603 bbls.

An interesting wildcat gas showing is that of the Gilliland Oil Co. and Berry Petroleum Co.'s No. 1 Ohm, C NW, Section 5-19-2w, Logan County, which found a 250,000-foot gas production at 2,854 feet. The well will be deepened. Logan County is one of numerous western Oklahoma Counties to which the industry looks for a future source of supply to maintain the State's place as a leading producer of oil and any showing there at this time is of interest. Lying south of Noble and west and southwest of Payne, both of which are producing counties, Logan County and its western neighbor, Kingfisher County, are destined to receive a considerable wildcat play in the months to come and it has only been the unfavorable crude market conditions that have put off the testing of that part of the State so long.

Burbank Production

Daily average production in Burbank Field for week ended November 12 was as follows by companies:

Company—	Wells	Bbls.
Carter Oil Co.	218	11,465
Comar Oil Co.	7	173
Cosden Oil & Gas Co.	105	3,449
Devonian Oil Co.	16	222
Gardner Petroleum Co.	20	422
Gypsy Oil Co.	196	5,919
Kewanee Oil & Gas Co.	25	594
Laurel Oil & Gas Co.	16	285
Lorraine Petroleum Co.	15	172
Midland Oil Co.	37	1,639
Mid-Kansas Oil & Gas	39	1,875
Peters Petroleum Corp	2	200
Phillips Petroleum Co.	103	12,403
Phillips Petroleum Co. and Delmar Oil Co.	16	1,713
Phillips Petroleum Co. and Skelly Oil Co.	174	5,759
Prairie Oil & Gas Co.	106	3,307
Producers & Refiners Corp.	29	450
Roxana Petroleum Corp.	56	811
Simons-Moore et al	29	317
Sinclair Oil & Gas Co.	145	3,017
Skelly Oil Co.	21	1,201
Tidal Osage Oil Co.	43	789
The Texas Co.	6	529
Twin State Oil Co.	24	1,196
Total	1,448	57,607
Total last week	1,444	56,519
Difference	4	1,088
Kay County Extension		
George Boles	3	440
Carter Oil Co.	11	1,353
Comar Oil Co.	19	1,173
Cosden Oil & Gas Co.	16	1,229
Gypsy Oil Co.	19	656
Laurel Oil & Gas Co.	5	357
Mid-Kansas Oil & Gas Co.	10	1,100
Phillips Petroleum Co.	31	3,569
Prairie Oil & Gas Co.	4	307
Pure Oil Co.	5	346
Roxana Petroleum Corp.	8	327
Dye-Tomlinson et al	8	627
Skelly Oil Co. and Phillips Petroleum Co.	20	443
The Texas Co.	16	353
Sinclair Oil & Gas	5	452
Twin State Oil Co.	15	936
Total	195	13,668
Total last week	194	13,689
Difference	1	21
Total Burbank Field	1,643	71,275
Total last week	1,638	70,208
Difference	5	1,067

Daily average pipe line runs from the Burbank Field during week ended November 12 were as follows: Gulf Pipe Line Co., 8,406 bbls.; Cosden Pipe Line Co., 8,878 bbls.; Kay County Gas Co., 6,330 bbls.; Osage Pipe Line Co., 1,045 bbls.; Oklahoma Pipe Line Co., 18,519 bbls.; Prairie Pipe Line Co., 4,095 bbls.; Sinclair Pipe Line Co., 3,469 bbls.; Moore Refining Co., 1,614 bbls.; Standish Pipe Co., 10,244 bbls.; Empire Pipe Line Co., 432 bbls.; Mid-Kansas Oil & Gas Co., 2,708 bbls.; Twin State Oil Co., 1,989 bbls.; Ozark Pipe Line Co., 1,762 bbls.; total, 70,849 bbls.; Delmar storage, 1,184 bbls.

Total storage in the Burbank Field on November 11, was 13,063,043 bbls.

Production in Tonkawa

Daily average production in Tonkawa Field for week ended November 12 was as follows by companies:

Company—	Wells	Bbls.
Amerada Petroleum Corp.	35	4,067
Blackwell Oil & Gas Co.	30	2,519
Carter Oil Co.	5	116
Champlin Refining Co.	2	10
Champlin Refining Co. and Twin State Oil Co.	1	25
Comar Oil Co.	339	38,150
Cosden Oil & Gas and Marland Oil Co.	18	254
Gypsy Oil Co.	97	10,555
Healdton Oil & Gas Co.	27	1,356
Wentz Oil Corp.	45	11,526
McMan Oil & Gas Co.	1	3
Pennok Oil Co.	32	8,489
Phillips Petroleum Co.	2	76
Prairie Oil & Gas Co.	13	538
Sinclair Oil & Gas Co.	1	15
Slick and Comar Oil Co.	36	15,650
Southwestern Petroleum Co.	15	574
The Texas Co.	5	45
White Eagle Oil & Ref. Co.	7	147
Total	710	94,111
Total last week	708	96,451
Difference	2	2,340
Deep Sand Production		
Amerada Pet. Corp., Goltry	2	2,863
Pennok Oil Co., Endicott	7	7,192
Comar Oil Co., Beverlin	1	2,324
Comar Oil Co., Pettit	3	5,456
Comar Oil Co., L. Endicott	3	7,148
Comar Oil Co., E. Endicott	7	11,809
Comar Oil Co., Gaume	1	1,534
Gypsy Oil Co., Shawver	4	7,819
Slick, Endicott	7	13,872
Blackwell O.& G. Co., McDaniel	1	1,389
Wentz Oil Corp., McKee	3	9,651
Total	39	71,057
Total last week	38	73,242
Difference	1	2,185

Daily average pipe line runs from the field were as follows: Kay County Gas Co., 24,427 bbls.; Ozark Pipe Line Co., 19,657 bbls.; Gulf Pipe Line Co., 9,725 bbls.; Champlin Refining Co., 16,708 bbls.; Bolene Refining Co., 2,614 bbls.; Globe Refining Co., 3,936 bbls.; Moore Refining Co., 4,092 bbls.; Producers & Refiners Corp., 959 bbls.; Enid Pipe Line Co., none; Oklahoma Pipe Line Co., 116 bbls.; Empire Pipe Line Co., 2,068 bbls.; Golden Rule Refining Co., 699 bbls.; Sinclair Pipe Line, 682 bbls.; storage 8,438 bbls.

Caused a Sensation

The Phillips Petroleum Co. brought in a batch of wells on its $505,000 lease in the southeast quarter of Section 11-27-5, Burbank Field, Osage County, in recent days, one of which caused a tremendous furore in Mid-Continent oil circles for a few hours, at least. The company's No. 8, NE cor. SE SE, Section 11, got sand at 2,991 feet on Thursday morning and began pouring out oil at the rate of 20,000 bbls. a day with the tools in the hole. It produced 840 bbls. the first hour, along with a large gas production, and the news went broadcast that it was one of the largest wells ever drilled in Oklahoma. It did not produce long at such a tremendous rate and in the first 24 hours yielded about 3,800 bbls. This lease was bought at the June sale of Osage lands and has 13 producing wells on it. No. 3, SE cor. SW SE SE, Section 11, which had come in at 300 bbls. naturally was shot at 3,002-54 feet but was good for only 75 bbls. No. 5, SW cor. NW SW SE, Section 11, has gas sand at 2,975 feet and oil at 2,985 feet, total depth 3,020 feet, and made 1,600 bbls. naturally the first 24 hours. No. 9, NW cor. SW NW SE, Section 11, got 2,000,000 feet of gas at 2,972 feet, oil at 2,975 feet, and began flowing at 2,980 feet, total depth 3,021 feet. The well produced 1,000 bbls. the first day. No. 10, NW cor. SE NW SE, Section 11, a 900-bbl. initial producer, uncovered gas at 2,985 feet and oil at 2,995 feet, total depth 3,036 feet. No. 12, NE cor. SE NE SE, Section 11, started at 1,800 bbls. from sand at 3,006-49 feet, first oil at 3,014 feet.

In the Burbank Field, Osage County, the Phillips Petroleum Co.'s No. 12, NE cor. SE NE SW, Section 11-27-5, was a 300-bbl. well after a shot at 2,965-3,009 feet.

Presbury & Forness were drilling below 725 feet in No. 3, C NE Section 17-27-10; The Texas Co.'s No. 12, GWL NE, Section 29-25-8, spudded in; B. P. McDonald's No. 2, C N half NE, Section 27-22-8, rig; Sand Springs Home's No. 82, C E half SE Section 36-22-8, drilling below 900 feet; Owen-Osage Gas Co.'s No. 307, C NW, Section 17-22-11, a machine; Breene and others' No. 1, NW cor. NE NW NE, Section 27-21-10, present depth 1,930 feet, will be drilled to Wilcox sand; Sheirick and others' No. 2, SE cor. SW, Section 28-21-10, a rig.

Recent completions in Osage County outside the Burbank Field include the Mid-Kansas Oil & Gas Co.'s No. 1, NW cor. NE, Section 34-25-8, dry and abandoned at 2,801 feet; Indian Territory Illuminating Oil Co.'s No. 326, NW cor. SW SE NW, Section 15-24-8, sand at 1,987-2,036 feet, 2,500,000 feet of gas, shut in; Winona Oil Co.'s No. 2, CSL SW, Section 25-24-9, dry and abandoned at 2,208 feet; Indian Territory Illuminating Oil Co.'s No. 328, C SE NE, Section 34-25-11, sand at 1,640-87 feet, 3,500,000 feet of gas, shut in; Marland Refining Co.'s No. 13, NW cor. SE, Section 20-23-8, dry and abandoned at 2,700 feet; Red Bank Oil Co.'s No. 5, CEL NW, Section 29-23-8, swabbing 300 bbls. of oil and some water at 2,890 feet; Henry Hornecker and others' No. 2, NW cor. SE, Section 5-21-11, dry and abandoned at 2,471 feet; Oklahoma Natural Gas Co.'s No. 645, NE cor. NW SW SW, Section 29-21-12, 6,000,000 feet of gas, shut in, sand at 1,517-36 feet; Elliott & Smith's No. 3, SE cor. NE NW, Section 30-21-12. Grimes & Gillespie's No. 11, SE cor. SW, Section 30-21-12, sand at 1,944-56 feet, 400 bbls. of oil and 40 bbls. of water initial production, now 225 bbls. of oil and 40 bbls. of water.

Prairie Extends Papoose

Robinson and the Amerada Petroleum Corp.'s No. 3 Carter, C SE NE NW, Section 4-9-9, Papoose Pool, started at 1,350 bbls. naturally from sand at 3,320-26 feet.

The Prairie Oil & Gas Co. extended the Papoose area a little north with its No. 1, SW cor. N half SE, Section 35-10-9, which started at 85 bbls. an hour from sand at 3,320 feet, drilled in 7 feet. This well is a quarter of a mile south and a location east of the deep dry hole abandoned recently by C. L. McMahon and others, SE cor. NW, Section 35. The Berry Petroleum Co.'s No. 1 Carolina, C SW SW NE, Section 31-10-9, was drilling at 3,415 feet with no showing.

T. B. Slick increased his production in the Papoose Pool to 8,000 bbls. a day while Slick and others' No. 1 Ryan, C NW NW NW, Section 2-9-9, was flowing 125 bbls. an hour from pay at 3,298 feet drilled to 3,313 feet. Slick owns outright or has a partnership interest in eight leases each of which either adjoins or corners another in Section 35-10-9, Section 3-9-9, Section 2-9-9 and Section 10-9-9, besides his other interests in the district.

T. B. Slick's No. 3 Bruner, C SW NW NW, Section 2-9-9, is a rig; Cosden Oil & Gas Co.'s No. 7 Alexander, C NE NE NW, Section 3-9-9, T. B. Slick's No. 4 Alexander, C SE NE NE, Section 3-9-9, and No. 4 Alexander, C SE NW NE, Section 3-9-9, rigs. Robinson & Amerada Petroleum Corp.'s No. 5, C SW NE NW, Section 4-9-9, a rig; Transcontinental Oil Co.'s No. 2 Carter, C NE NE NE, Section 5-9-9, spudded in.

Big Wells in Cromwell

In the Cromwell Pool, Seminole County, the Empire Gas & Fuel Co.'s No. 2 Dunn, C SE SE SE, Section 4-10-8, got sand at 3,324 to 3,430 feet with 40,000,000 feet of gas and a spray of 25 bbls. a day. No. 4 Dunn, C NE SE SE, Section 4-10-8, got the top of the sand at 3,440 feet and was flowing 365 bbls., and drilling at 3,460 feet. The Sinclair Oil & Gas Co. found a shallow pay in its No. 1 Clark, C SW NW NE, Section 4-10-8, the most northerly well in the field. From 1,730 to 1,742 feet a sand was found that was good for 50 bbls. a day. Drilling was continued.

The Waite Phillips Co. had 5,100 bbls. production last Friday from three wells on its 60-acre tract in the southeast quarter of Section 4-10-8. On that day Nos. 1 and 2 were flowing 4,200 bbls. and No. 3, C N half SE NE SE, which got sand at 3,351 feet, was drilling at 3,392 feet with a 900-bbl. production. The wells are on the south line of the lease. The Carter Oil Co.'s No. 1 Starr, C SE SE NW, Section 9-10-8, had sand at 3,382 to 3,415 feet and 3,000,000 feet of gas and was shut down. The same company's No. 3 D. Hill, C NW NW NE,

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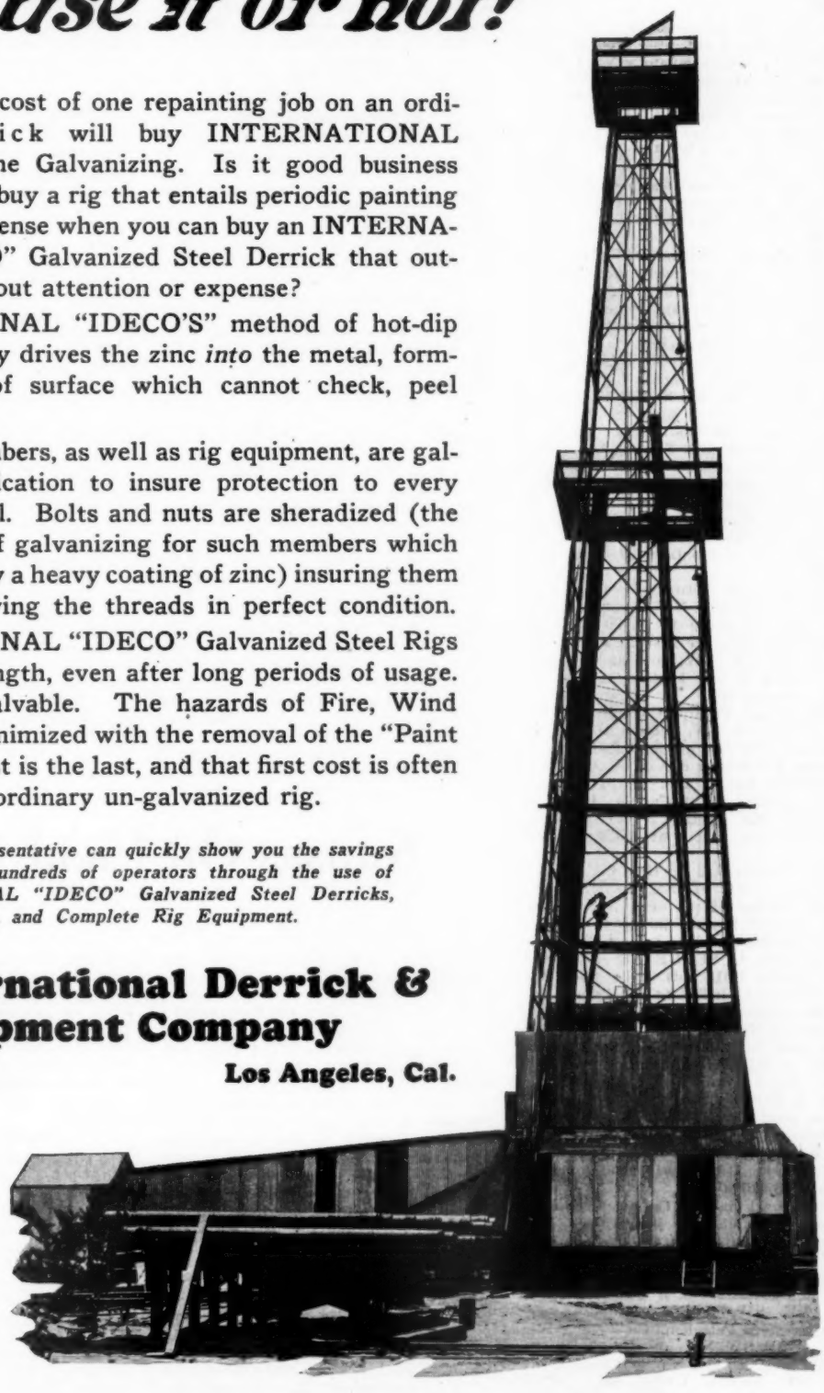

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Section 9-10-8, was flowing 1,600 bbls. while drilling at 3,480 feet in sand topped at 3,403 feet. The same company's No. 1 B. T. Hill, C NE NE NW, Section 9-10-8, got sand at 3,446 feet and was drilling in sand with oil in the hole. The Carter Oil Co.'s No. 3 Brown, C NW NE SW, Section 10-10-8, was good for 153 bbls. in sand at 3,315-38 feet.

The Carter Oil Co.'s No. 2 Hill, C SE NW NE, Section 9-10-8, was flowing 1,830 bbls. a day from sand at 3,341-3,447 feet; same company's No. 1 Starr, C SW SW SE, Section 9-10-8, 180 bbls. in 24 hours from sand at 3,420-83 feet; No. 2 Starr, C NE SW NW, Section 9-10-8, 600 bbls. a day at 3,442-3,502 feet; No. 3 Starr, C NW SW NW, Section 9-10-8, 1,034 bbls. a day at 3,439-99 feet; Carter Oil and Gardner Petroleum Co.'s No. 6 Bunner, C NW NE SW, Section 9-10-8, 80 bbls. a day at 3,416-64 feet.

The Central National Oil Co., which some time ago extended the Cromwell Pool into Section 4-10-8, while the Sinclair Oil & Gas Co. and others were extending the pool southwesterly into the western half of Section 9, thus starting the drilling of about 60 wells, has two new producers in Section 4. Its No. 4 Hall, C NW SE SE, Section 4, got sand at 3,440 feet and at 3,462 feet and drilling, it made 520 bbls. a day. Its No. 3 Hall, C NE SE SE, Section 4, got sand at 3,334 feet, a shale break at 3,343-56 feet and sand at 3,357 feet, was drilling at 3,375 feet and making 480 bbls. Its No. 2 Hall, C SE SE SE, Section 4, was flowing 35 bbls. a day along with 35,000,000 feet of gas from sand at 3,324-3,420 feet.

The Amerada Petroleum Corp.'s No. 1 Starr, C SE SW NW, Section 9-10-8, got sand at 3,430 to 3,490 feet and flowed 116 bbls. the first 24 hours. No. 2, C SW SW NW, got sand at 3,410 feet where it had a show of gas, and was cleaning out.

The Waite Phillips Co.'s No. 2 Proctor, C SE NE SW, Section 16-10-8, got sand at 3,480 feet and at 3,540 feet was flowing 140 bbls. a day of oil a'ong with 10,000,000 feet of gas.

The Carter Oil Co.'s No. 1 Hill, C NE NW NE, Section 9-10-8, was good for 150 bbls. a day at 3,333 to 3,365 feet.

The Prairie Oil & Gas Co.'s No. 1 Buckner, C SE SE SE, Section 8-10-8, found the top of the sand at 3,472 feet and started flowing 20 bbls. an hour while the big pipe was being pulled. No. 5 Buckner, C SE NE SE, Section 8, was flowing 1,512 bbls. a day from sand at 3,470 feet, drilled to 3,504 feet.

The Cosden Oil & Gas Co.'s No. 1 Keyes, C SE SE SW, Section 4-10-8, was good for 1,000 bbls. from sand at 3,425 to 3,506 feet, total depth 3,536 feet; No. 2 Keyes, C NE SE SW, Section 4, flowed 1,246 bbls. the first day from sand at 3,423-3,505 feet. The Transcontinental Oil Co. and Sinclair Oil & Gas Co.'s No. 8 Bruner, C SE NE SW, Section 9-10-8, was good for 1,440 bbls. at 3,426-80 feet.

New work in the Cromwell Pool includes the following operations: Roxana Petroleum Corp.'s No. 2 Yahola, C SW NE SW, and No. 3 Yahola, C NW SE SW, Section 3-10-8, rigs; Cosden Oil & Gas Co.'s No. 3 Toney, SW cor. SE NE SW, Section 4-10-8, a rig; Southwestern Petroleum Co.'s No. 2 Wisner, C SE SW NE, and No. 3 Wisner, C SW SE NE, and No. 4 Wisner, C SE SE NE, Section 4-10-8, rigs.; Waite Phillips Co.'s No. 5 Dunn, C NW NW SE, and No. 6 Dunn, C NE NW SE, No. 7 Dunn, C SW NE SE, and No. 8 Dunn, C NE SE, Section 4-10-8; Carter Oil Co.'s No. 2 Hall, C SW NW NW, and No. 3 Hall, C SE NW NW, Section 9-10-8.

Good Wells in Jennings Area

The Twin State Oil Co.'s No. 2 Fleming, SW cor. SE SE, Section 8-20-7, Jennings district, Pawnee County, which started at 245 bbls. a day naturally from sand at 2,634-74 feet, was shot with 20 and then with 40 quarts of explosive and made 315 bbls. the next 24 hours. The oil is of 39.2 gravity. The same company's No. 3 Fleming, SE cor. SW SE, Section 8-20-7, was shot with 30 quarts at 2,698-2,725 feet and started at 245 bbls. but later was reported making 215 bbls. Rigs are up for No. 4, CSL SE SE, and No. 5, CSL SW SE, Section 8. Cosden Oil & Gas Co. has started drilling No. 7 School Land, CWL SW NW, Section 16-20-7. Ed Reese's No. 3, Lot 4, Block 8, SE cor. NE NE NE, Section 17-20-7, made 120 bbls. naturally from sand at 2,608-37 feet, but a 40-quart shot increased the production to 303 bbls. the ensuing 24 hours. Clifford & Van Eman, SE cor. NE NE, Section 17-20-7, flowed 200 bbls. the first day after a shot at 2,616-44 feet.

In Northwestern Fields

The Blackwell Oil & Gas Co. has a rig up for No. 3 Humphries, SW cor. NW NE SW, Section 10-27-1w. The Comar Oil Co.'s No. 2 McCormick, NW cor. NE SE, Section 21-29-1w, was spudded in; same company's No. 2 Priboth, NW cor. Section 21-29-1w, spudded in; Heckman and others' No. 1 Sheet, SW cor. NW SE, Section 25-29-1w, spudded in; Marland Refining Co.'s No. 1 Webb, NW cor. NE NE, Section 2-27-3w, spudded in; Marland Refining Co.'s No. 1 McCullough, CNL SW, Section 12-26-2w, drilling with a hole full of water at 3,677 feet in a water sand.

The Comar Oil Co.'s No. 1 Williams, NE cor. SE NE, Section 7-27-2e, made a 10-bbl. showing after a shot at 3,672-87 feet.

Some Late Tonkawa Gauges

Late gauges on wells in the deep sand in the Tonkawa district that were drilled deeper into the sand showed the Amerada Petroleum Corp.'s No. 33 Woods, Section 34-25-1w, making 1,495 bbls. a day from sand at 4,005-54 feet; Comar Oil Co.'s No. 1-W Clements, Section 34-25-1w, 2,303 bbls. a day from sand at 4,143-79 feet; Comar Oil Co.'s No. 1-W Endicott, Section 34-25-1w, 1,385 bbls. at 3,980-4,020 feet; No. 2-W Endicott, 1,483 bbls. at 4,099-4,155 feet; No. 4-W Endicott, 5,740 bbls. at 4,040-4,118 feet; No. 7-W Endicott, 1,976 bbls. at 4,044-90 feet; Wentz Oil Corp.'s No. 29 McKee, Section 34-25-1w, 2,991 bbls. at 4,310-26 feet; Pennok Oil Co.'s No. 3-D Endicott, Section 34-25-1w, 3,250 bbls. at 4,304-30 feet; Comar Oil Co.'s No. 1-W Endicott, Section 35-25-1w, 3,168 bbls. at 3,950-4,040 feet; No. 1-W Endicott, Section 35-25-1w, 3,168 bbls. at 3,950-4,040 feet; No. 5-W Endicott, Section 35, 1,950 bbls. at 3,918-4,003 feet; No. 7-W Endicott, Section 35, 2,229 bbls. at 3,915-4,006 feet; T. B. Slick's No. 6-E Endicott, Section 35, 2,000 bbls. at 3,952-4,062 feet; No. 7-E Endicott, 4,500 bbls. at 3,952-4,056 feet; No. 8-E Endicott, 1,600 bbls. at 3,883-3,981 feet; Comar Oil Co.'s No. 6-W Carmichael, Section 3-24-1w, 1,812 bbls. at 4,218-4,251 feet; No. 11-W Carmichael, Section 3, 2,752 bbls. at 4,254-80 feet.

Creek County

The Purdy Petroleum Co.'s No. 1 Hill, SE cor. SW NE, Section 6-16-9, is a 45-bbl. well from sand at 2,737-47 feet. Donnelly & Hall's No. 1 Peters, C NE SE NW, Section 17-14-10, is pumping 53 bbls. a day from sand at 2,878-80 feet. E. L. Kistler's No. 1 Scott, NW cor. SW NW, Section 21-14-10, pumped 112 bbls. a day. There is oil sand at 3,348-53 feet, lime at 3,353-67 feet and sand at 3,367-71 feet. W. E. Brown's No. 2 Horner, C NE SE SE, Section 35-16-9, sand at 2,905-78 feet, 25 bbls. naturally; Waite Phillip's No. 1, C SW N WSE, Section 17-14-10, dry and abandoned at 3,460 feet; Prairie Oil & Gas Co.'s No. 1 Carr, SW cor. NE, Section 7-14-7, sand at 4,114-65 feet, swabbed 35 bbls. of oil and a little water; Waite Phillips Co.'s No. 1 Jack, NW cor. Section 7-14-7, dry and abandoned at 3,565 feet.

The Eastern Oil Co. was drilling No. 7 Roberts, NE cor. SW SE, Section 17-15-8, below 800 feet; C. G. Tibbens' No. 2 Sneed, SW cor. NW NW, Section 18-14-9, drilling at 230 feet; Cosden Oil & Gas Co.'s No. 1 Bear, NE cor. NE SW, Section 24-14-9, drilling at 875 feet; Steinberger and others' No. 1 Canard, SW cor. Section 20-19-8, a rig. Prairie Oil & Gas Co.'s No. 8 Shoals, NE cor. SE, Section 33-16-9, drilling at 200 feet; H. C. Wilson's No. 1 Strip, SE cor. NW, Section 4-14-10, spudded in; H. F. Wilcox Oil & Gas Co.'s No. 2 Scott, C NW NW NE, Section 20-14-10, drilling below 500 feet; E. L. Kistler's No. 2 Scott, C NW SW NW, Section 21-14-10, a rig; Nowata Oil & Refining Co.'s No. 3 McNac, SW cor. SE NW, Section 16-16-9, drilling below 500 feet; Prairie Oil & Gas Co.'s No. 6 M Shoals, NE cor. SE, Section 33-16-9, drilling below 700 feet; Twin State Oil Co.'s No. 1 Brady, C SW SW NW, Section 34-16-9, spudded in.

250-Bbl. Well at Mounds

J. H. Hildt and others have a good well in the Mounds district, Tulsa County. No. 1 Maxwell, CEL NE SE, Section 7-16-12, got a gas sand at 2,044-62 feet with a 6,000,000-foot gas production and oil at 2,062-70 feet showing a 250-bbl. initial production of 35 gravity oil.

Stout and others' No. 1 town lot, SE cor. SW NE SW, Section 8-16-12, is a 25-bbl. well at 2,116-60 feet. Woodberry and others' No. 1 town lot, SE cor. NE SW, Section 8-16-12, was dry and abandoned at 2,170 feet.

The town lot operations in Mounds show no signs of letting up. A number of tests have been started recently in the development, most of them in Sec. 8. Thompson & Black have started drilling No. 1 Grayson, SE cor. NE NW NE, Section 10-16-12, and the Sheldon Oil Co. and others are drilling below 600 feet in No. 1 Vore, NE cor. SE SW, Section 34-16-12.

Okemah Completions

Black & Turman's No. 1 Dunson, SW cor. Section 17-11-10, Okfuskee County, was dry and abandoned at 3,875 feet. Robinson and others' No. 1 Grayson, NW cor. SW, Section 19-11-10, had a 75-bbl. showing in sand at 3,017 feet to 3,022 feet. The Magnolia Petroleum Co.'s No. 3, NE cor. SE SE, Section 4-9-11, started at 280 bbls. a day at 2,903-08 feet. The Tidal Osage Oil Co.'s No. 1 Coachman, C SE SW SW, Section 4-9-11, started at 147 bbls. after a shot at 3,058-83 feet.

The Tidal-Osage Oil Co. has a rig up for No. 5, CSW NW SW, Section 3-9-11, and a rig up for No. 1 Baker, SE cor. NE SW, Section 4-9-11. The Mid-Kansas Oil & Gas Co. is drilling below 2,500 feet in No. 3 Bruner, C NE SW NE, Section 9-9-11.

Wewoka Developments

In the Wewoka district, in Seminole County, the Dixie Oil Co.'s No. 4 Walker, C SW NE SE, Section 29-8-8, was dry and abandoned at 3,110 feet. Boggs Oil Co.'s No. 4 Willia, C NW SE NE, Section 31-8-8, is a 350-bbl. well from sand at 3,222 feet, drilled in 2 feet. The Dixie Oil Co.'s No. 2 Ed Parker, C NW NE SW, Section 32-8-8, is flowing 300 bbls. a day naturally from sand at 3,176 feet, drilled in 3 feet. The Dixie Oil Co.'s No. 2 Walker, SW cor. NE NW, Section 32-8-8, started at 256 bbls. a day from sand at 3,219-41 feet. The Magnolia Petroleum Co.'s No. 2 B. Tiger, C NW NW SW, Section 32-8-8, was a 386-bbl. initial producer from sand at 3,250 feet, drilled in 5 feet. Lewis & Clark's No. 3 Long, C NW SE SW, Section 33-8-8, was dry and abandoned at 3,330 feet.

The Magnolia Petroleum Co. has commenced drilling No. 2 Joshua, C SE SW SW, Section 29-8-8; Dixie Oil Co. is drilling in No. 1 Parker, NE cor. SW, Section 32-8-8, now below 2,250 feet; Magnolia Petroleum Co.'s No. 2 Walker, NE cor. NW NW, Section 32-8-8, drilling below 300 feet.

Muskogee and Wagoner

Denton & Marshall abandoned a test on the Davis farm, C S half NW SE, Section 7-15-18, Wagoner County, at 1,315 feet. It passed through a dry sand at 1,010-25 feet. M. E. Johnson is drilling below 410 feet in No. 1 Harris, SW cor. SE, Section 19-14-19.

In Muskogee County E. C. Robinson's No. 4 Durant, SW cor. SE NW, Section 27-14-15, was dry and abandoned at 1,840 feet. J. D. Edmonson was drilling below 1,600 feet in No. 1 Bumpus, C NE SE SW, Section 8-14-16.

In Okmulgee County

In the Beggs district, Okmulgee County, Clover and others are drilling below

(Continued on Page 110)

Kansas Oil Field News

By C. D. Lockwood

The results from field work in Kansas in the past week were not of a character to cause any unusual interest. The completions were about on the average as to initial production and there were no more wells finished than the State usually shows in a week's time.

The Gypsy Oil Co.'s No. 1 Poor, SW cor. Section 3-33-3, Graham district, Cowley County, is down to 400 bbls. a day. It had an initial production around 800 bbls. a couple weeks previously.

In the scramble to find Wilcox sand production in Montgomery, Wilson and Labette Counties operators appear not to be altogether discouraged by the numerous dry hole tests that have recently been completed, and the past week saw the beginning of a number of operations in that part of the State. French and others' No. 1 Lee, NW cor. SE SE, Section 6-35-17, was flowing 100 bbls. a day a week after its completion in sand at 1,213-18 feet. The top of the Mississippi lime was found at 889 feet. C. A. Crane's No. 1, SE cor. NE NE, Section 23-34-15 got lime at 1,228 feet, and sand and 1,550 feet, where they drilled into water. It was plugged back to 1,230 feet and saved as a gas well. Harwood & Hazlett's No. 1 Bowlby, SW cor. NE, Section 1-33-16, found lime at 1,102 feet, but was abandoned as a failure at 1,455 feet, with no sign of sand. Sharpless & Stark's No. 1 Baum, NW cor. NE NW, Section 23-31-13, got the lime at 1,440 feet and abandoned the hole at 1,683 feet, with no sand showing.

New work started in the area included the following operations: Pennant Oil Co.'s No. 1 Hazen, CNL SE NW, Section 10-31-16, rigged up; Orlando Petroleum Co.'s No. 1 Corrinder, C SE NE, Section 12-35-14, a rig; Frank Swift's No. 1 Brindell, SW cor. SE NE, Section 2-33-16, rigged up; Sternberg and others' No. 1 Budka, SW cor. NW SW, Section 12-33-16, drilling below 700 feet; Cross Production Co.'s No. 1 Good, SE cor. SW NE, Section 12-33-15, rigged up; Dunn and others' No. 1 Clark, NW cor. NE, Section 32-33-16, drilling below 1,000 feet; Appleman and others' No. 1 Litt, NE cor. SW, Section 22-33-17, drilling at 250 feet; Dunn and others' No. 1 Newman, SE cor. NE, Section 2-32-13, rigged up.

Greenwood Operations

In Greenwood County, Buck and others drilled a dry hole in No. 1 Pixley, C SW NW NW, Section 10-22-10, at 2,472 feet, 92 feet in the lime. Dinge and others' No. 1 Hawthorn, NE cor. SW, Section 1-25-9, was abandoned at 2,260 feet, the top of the Mississippi lime.

The Phillips Petroleum Co.'s No. 2 Teeter, C SE SW NW, Section 15-23-9, averaged 300 bbls. a day for the first 10 days. This well had been completed originally in sand at 2,285 to 2,332 feet and was a 35-bbl. well. It was drilled through sand at 2,366 feet and its production increased to more than 300 bbls. initially. The Mid-Kansas Oil & Gas Co.'s No. 12 Martindale, SW cor. Section 31-23-10, made a 60-bbl. well after a 200-quart shot in sand at 2,291-2,331 feet. The Phillips Petroleum Co.'s No. 1 Hughes, C SW SW NW, Section 10-22-9, was abandoned at 2,585 feet, 61 feet in the lime.

New work started in Greenwood County includes the Magnolia Petroleum Co.'s No. 1 Kuhn, NW cor. SW NE, Section 28-26-9, spudded in; Roth & Faurot's No. 1 Tucker, C NW SE NW, Section 12-25-8, drilling below 1,000 feet; Connell and the White Eagle Oil & Refining Co.'s No. 1 Gregg, SW cor. SE SE,

(Continued on Page 128)

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The Compressor with the Simplate Valve

California Field Operations

By L. P. Stockman

Several wells nearing completion depth at Rosecrans. Completion last week produced oil of lower gravity than other wells of area. Marland gets well making 1,910 bbls. at Dominguez. Four new wells brought in at Torrance. Drop in output at Long Beach is expected.

LOS ANGELES, Cal., Nov. 17.—There was only one new producer finished in the Rosecrans area during the past seven days but, judging by their present status, several others should enter the producing column for the first time within the next few weeks. The latest producer in this field is No. 1 Wanka of the Associated Oil Co., which came in flowing 901 bbls. of 32.3 gravity oil from 4,100 feet. Both the quantity and quality of the oil produced proved a surprise The output is of particular importance because of its low gravity, since all of the other wells in the district are producing oil testing between 37 degrees and 41 degrees in gravity. The Associated acquired this lease from the George F. Getty organization several weeks ago, giving, it is reported, a small overriding royalty.

It seems apparent that Getty has instructed his organization to cut down on development work wherever possible. Getty has been doing considerable drilling during the past few years at Santa Fe Springs, Long Beach and Torrance. His production at Santa Fe was quite large for several months but with that field's decline, his production dropped off correspondingly. With Long Beach on the down grade, very little additional development is warranted there at the present time. There is little question but that Getty was somewhat disappointed in the Torrance Field.

Because of the small daily well production, it will take years and years for operators in this district to get back their investments. Many will probably never equal their expenditures. This field, therefore, is a big company field, a district which should be developed by the marketing companies, as it gives them a small but constant source of supply.

Very few of the exclusive producing companies have made money at Torrance. Of the major producing companies, the Petroleum Midway, (California Petroleum) is a good example. This organization has something like 40 producing wells and a daily production of only about 3,000 bbls. in this field. It can be seen that it will be many years before these wells pay out, if they ever eventually do. Getty faced a similar situation and, realizing that his twenty or more holes would be a long time paying out, he very wisely curtailed his drilling operations in this and other districts, at least until better prices are paid for crude.

Had the Wanka lease at Rosecrans been proved up for gusher production, Getty would have been warranted, as an exclusive producer, in drilling it, but, since it only looks good for small settled production, his deal with the Associated is a good one. In addition to this lease, the Associated has several others under development. No. 1 Brockley has been recemented at 4,906 feet, while No. 1 Haviland is going ahead at 4,437 feet. No. 1 Hoge at 4,342 feet will be cemented within the next few days, while on the Higgins property, No. 2 at 3,754 feet ran into a fishing job with only about 500 feet to go for production. No. 1 on the latter lease is making 375 bbls. of clean oil from 4,384 feet. The Miley-Marland interests are bringing along six wells simultaneously, at least two of which look good for early production. Of these six wells, two are Miley's personal ventures, while the remaining four are being drilled both by Miley and the Marland. Miley's No. 1 Athens is in the oil sand at 4,946 feet and preparations are being made to run in a string of 6⅝-inch and land around the 4,900-foot level. Miley's No. 2, on another and more favorably located lease, is standing cemented at 4,661 feet for the second time, the first job being wet. No. 1 of the Miley-Marland wells secured a positive core at 4,100 feet and, since the oil sand was still present at 4,105 feet, an early completion is anticipated. This well may, however, be carried down to around 4,400 feet. No. 2 shows 4,354 feet of hole with a string of 8¼-inch cemented at 4,249 feet. No. 3 is standing cemented at 4,125 feet, while No. 4 shows 3,890 feet of hole.

Cores Are Encouraging

The most important development in this, the Rosecrans Field, during the week were the positive cores taken in the General Petroleum's No. 1 Amestoy at 5,980 feet and in the Union's No. 1 Trust at 5,570 feet. These two holes in the western part of the district were both practically given up as dry and, while they are not assured of commercial production as yet, they are quite encouraging. The Standard's No. 1 Cowan in the eastern part of the field is another hole being watched with interest and, although it is now down 5,096 feet, there is still a chance of developing production. This location, however, is not believed to be as favorable as No. 1 Trust of the Union or No. 1 Amestoy of the General Petroleum.

In the south, operators are watching No. 1 Rowell of the St. Helens at 4,558 feet; No. 1 Athens of the Pacific Petroleum at 4,190 feet and No. 23 of the U. S. Royalties at 4,745 feet. No. 1 Gordon of the Union at 5,145 feet and No. 1 Van Nuys of the Superior at 4,598 feet should also prove interesting to those watching this section of the field. In addition to No. 1 Van Nuys, the latter company has three holes on the Maxwell property, No. 1 making 290 bbls. a day, No. 2 cleaning out at 3,790 feet and No. 3 which looks good for production at 4,322 feet. In the northern part of the field, operators are watching the Marine's No. 31 at 3,310 feet and the same company's No. 32 at 3,650 feet. J. B. Dabney's No. 1, a little to the north and east, is still experiencing water trouble, the bottom of th hole being 5,243 feet. E. J. Miley's No. 1 Athens, mentioned previously as being in the oil sand at 4,947 feet, is due west of this well and it will be interesting to watch the outcome of each. Miley has much the better of location and it would not be surprising if he completed this well and extended the limits of the field north of the Union's Howard Park lease. The Pan American's No. 1 Anderson at 4,062 feet and the Shell's No. 1 Leonis at 4,064 feet, 1 mile northwest, are drilling ahead, their only hope being the existence of another structure. The Petroleum Midway's No. 1 Ducommon, midway between No. 1 Leonis of the Shell and E. J. Miley's No. 1 Athens, is held up with a fishing job at 3,391 feet.

Systematic Development

The field, as it looks today, is in the hands of the major operating companies which control large blocks of acreage, and it will undoubtedly be developed systematically. Although the Associated, General Petroleum and others have large leases, the Union and Barnsdall have the cream of production in the center of the field, their Howard Park, Trust, O'Dea and Rosecrans leases being on the apex of the structure. The Union and Barnsdall, as the result of a compromise following the discovery of oil in the former's No. 1 Rosecrans in January of the current year, have a working afreement covering several pieces of property. When the Union found its first showing in No. 1 Rosecrans, attention was immediately di ected to the possibility of oil existing under the Barnsdall's Athens lease. The Barnsdall had previously drilled its wildcat, No. 1 Athens, to 4,530 feet, at which depth operations were suspended. The Union, wishing to test out the area, took over the Barnsdall's hole, originally drilled by the Potter Oil Co. and finished it as the first producer in the field at 4,971 feet.

These two successful concerns, in order to avoid a lawsuit which would work to the detriment of both, arrived at a compromise covering several pieces of property. The Union agreed to develop the Barnsdall's Athens lease, now known as the Union's Howard Park property, on a 66⅔ basis, that is, the Union retained a two-thirds interest in production and the Barnsdall a one-third. This lease consists of over 200 acre. The Barnsdall undertook to develop the 80-acre O'De lease on a 70-30 basis, the Barnsdall retaining 70 per cent of the production and the Union 30 per cent. The Barnsdall also assumed responsibility for the development of a small piece of the Rosecrans lease consisting of a little over 2½ acres. On the Howard Park property, in which the Barnsdall is also interested, the Union has one producer making 575 bbls. per day and six drillers varying in depth between 400 feet and 4,990 feet. On the Rosecrans lease, in which the Barnsdall has no interest, the Union has one flowing well doing 2,500 bbls. per day and four drillers, all of which are below the 4,000-foot level.

In addition to these, the Union has one well on the Hursey, Zins, Gray, Chandler, Padelford, Gordon, Horowitcz and two of the Trust leases. On the O'Den property, in which the Union is interested, the Barnsdall has two holes and a new rig standing for No. 3. The same company's Rosecrans property shows one producer making approximately 360 bbls. a day and two drillers. No. 1 O'Den of the Barnsdall, has just come in flowing 900 bbls. a day of clean 39.5 gravity oil. The well made a flow some time ago from 4,70[illegible] feet but because of water is was plugged back to 4,724 feet, from which depth the present flow is coming. It came in while a production test was being made and it is understood the company will kill it in order to set the oil string, there being only 4,645 feet of 6¼-inch in the hole at present. The only new work started in the field was the spudding in of R. W. Perkins' well No. 1 and the erection of a new rig for No. 1 Jamison by the Union Oil Co.

Dominguez

The Marland Oil Co. secured its second well at Dominguez during the latter part of the week and brought the total number of producers in the district to 27. No. 2 Dominguez, the company's new well, was good for 1,910 bbls. of clean 30.9 gravity oil. It was brought in from 4,235 feet, no trouble being experienced either in drilling or finishing it. No. 3 at 4,00[illegible] feet and No. 4 at 4,200 feet on the same lease should augment the company's present two producers within a short time. The Associated and Shell should also finish new wells in the near future, unless mechancal trouble develops. The former has five drillers and two rigs standing on its De Francis lease, while the latter has several prospective producers on the Reyes lease and three on the Manuel property. The Associated's drilling list shows No. 1-B at 3,145 feet; No. 2 at 3,655 feet; No. 3 at 3,501 feet; No. 4 at 3,920 feet and No. 5 at 2,872 feet. The completion depth should be around 4,250 feet.

The Shell's Manuel lease, adjoining the Associated's De Francis property on the east, shows No. 1 at 4,000 feet; No. 2 at 3,765 feet and No. 3 at 3,885 feet, the pay being expected around 4,300 feet. The Shell's deep test in the northwestern part of the field, No. 1 Hellman, is approaching the 5,600-foot level, the formation being a brown shale streaked with oil sand. The United, with one producer doing around 1,300 bbls. a day and one driller, No. 2 at 3,842 feet, has rigs up for Nos. 3 and 4. The General Petroleum is working on No. 2 Gardena in an effort to make a producer of it, but so far is not meeting with any degree of success. The Birch's No. 1 Humphries, a wildcat in the western part of the field, is going ahead at 5,286 feet, the formation being a hard gray sand.

Torrance

The Chanslor-Canfield Midway Oil Co. and the Standard Oil Co. each finished two new wells at Torrance during the seven-day period just ended. By a strange coincidence, both companies finished their new wells on one lease, the Chanslor's new producers being on the Del Amo lease and the Standard's two new acquisitions being located on the Marble fee property. The former's No. 30 Del Amo was a 150-bbl. pumper, while No. 101 on the same lease, was good for 122 bbls. on the beam. No. 30 drilled to 3,700 feet and finished

(Continued on Page 106)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

Agwisea, November 3, New York, crude	90,746
Dixie Arrow, November 3, New York, crude	90,146
W. M. Irish, November 9, Philadelphia, refined	78,393
Tuxpanoil, November 9, New York, crude	76,864
Coastwise	
W. S. Miller, November 4, Richmond, crude	74,976
Cathwood, November 4, Martinez, crude	76,411
U. S. Tanker Neches, November 5, Seattle, fuel	58,076
Wm. F. Herrin, November 6, Avon, fuel	48,847
D. G. Scofield, November 6, Richmond, crude	80,066
Los Angeles, November 6, Martinez, crude	75,674
Frank H. Buck, November 7, Linnton, fuel	65,129
W. S. Miller, November 7, Richmond, crude	75,010
La Purisima, November 8, Portland, refined	51,520
R. J. Hanna, November 9, Richmond, crude	76,858
Mericos H. Whittier, November 9, Seattle, fuel	71,418
Salina, November 9, Portland, fuel	65,930
Exports	
Mina Brea (Br.), November 4, Vancouver, crude	46,641
El Lobo (Br.), November 7, Japan, fuel	42,404
Liebre, November 7, Honolulu, fuel	72,924
Calgarolite (Br.), November 8, Chile, fuel	75,193
Cathwood, November 9, Vancouver, fuel	80,214
From San Francisco	
Tamaha (Br.), November 2, Cavite, refined	58,916
Gargoyle, November 4, Philadelphia, refined	82,024
Lubrico, November 4, Point Wells, fuel	86,415
From Port San Luis	
Utacarbon, November 7, Oleum, crude	79,611

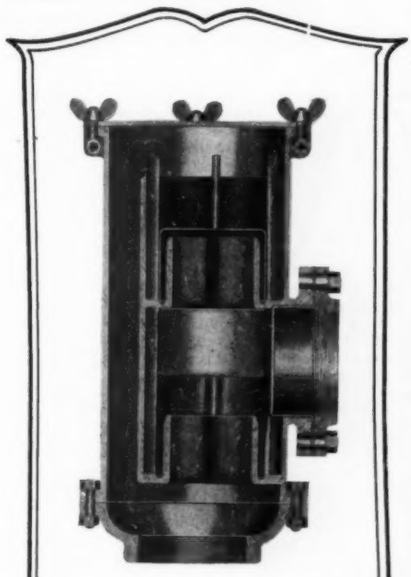
Are You Eliminating Evaporation Loss With POSITIVE Safety?

Or are you depending on daily inspection of your mechanical valves to insure positive protection? If so, you are needlessly adding to the price of your equipment through valve maintenance.

Liquid Safety Valves constantly guard your tanks against evaporation losses and dangerous vacuums, no matter what size or make of tank you use. They are not mechanical, will not stick or corrode, and have no seats to grind.

Liquid Safety Valves seat in mercury, which prevents sticking and corrosion. The liquid, forming the seat, cannot be blown out or lost by pressure as the self-raising cylinders fluctuate at ½ ounce pressure. The slightest internal pressure or vacuum instantly operates the valve which promptly permits ingress or egress of air in the volume necessary to equalize pressures.

Liquid Safety Valves are made of solid cast iron and are interchangeable to fit tanks of varying sizes. Installation can be made on the deck line.



Put Liquid Safety Valves on Your Tanks, Insure Positive Protection and Stop Evaporation Losses

Positive Gauge Hatch and Thief-Hole Device Has Two Positive Seats

The gauge hatch has two positive seats, one at the top, where the covers extend over the base, and another seat is formed inside by the immersion of the lower edge of the cover in the mercury.

For gauging and thieving purposes, this improved thief hatch provides an 8¼ inch opening. The cover, operated by means of a foot lever, cannot be left open. When the operator's foot is removed the cover automatically closes, its lower edge dropping into the liquid contained in the recessed rim of the hatch and giving a gas tight seal. There are no seats to corrode or require grinding.

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good for early production. Of these six Utacarbon, November 7, Oleum, crude 79,611

North Louisiana-Arkansas

By M. L. Vaughn

Cotton Valley production goes up to 13,747 bbls. a day, but is offset by decreases in Smackover, reducing total for both fields 2,506 bbls. Cotton Valley District being extended both southwest and southeast with indications discovery wells were on the edge of the pool. Operations carried across stream.

SHREVEPORT, La., Nov. 17. — Another gain in Cotton Valley production during the week brought the output of that district up to 13,747 bbls. a day, which, despite the steady decline in other districts, resulted in an average increase per day of 1,339 bbls. in the North Louisiana Field. This increase, however, was more than offset by a marked decline in Smackover production, both in the light and heavy oil districts, amounting to 3,630 bbls. a day and by a falling off in other districts which increased the decrease in Arkansas production to an average of 3,845 bbls. a day. Total production from the combined fields averaged 177,481 bbls. daily and was distributed as follows:

North Louisiana	
Bellevue	4,757
Caddo light	10,302
Caddo heavy	2,350
Cotton Valley	13,747
De Soto and Red River	4,765
Elm Grove	635
Haynesville	16,420
Homer	7,195
Total	60,171
South Arkansas	
El Dorado	11,410
Nevada County	1,325
Smackover light	31,540
Smackover heavy	70,795
Stephens	2,240
Total	117,310
Total both fields	177,481
Decrease	2,506

Two wells were completed in the Waskom district on the Texas side of the line during the past week. The Waskom Drilling Co. completed No. 1 Mullins, in the Wilson headright survey, making 25,000,000 feet of gas at 971 feet, and J. W. Clark completed No. 1 Abercrombie in the Lipscomb headright survey, making 20,000,000 feet of gas at 954 feet.

Crude Prices

Bellevue crude advanced 25 cents a barrel last week, brings the price of oil from this district up to $1.35. Oil is obtained in the Bellevue Pool at a depth of from 375 to 390 feet and the oil grades 19½ degrees Baume. The production from the Bellevue Pool averages 4,900 bbls. a day and most of it is handled by the Louisiana Oil Refining Corp.

According to operators in the Nevada County Field, oil from that district is bringing $1.55 a barrel in Houston, although the Standard Oil Co. is paying only 85 cents a barrel f.o.b. cars in the field. The Humble Oil & Refining Co., which has contracted for all the oil from the Keystone lease in the Nevada County Field, has been paying 94 cents a barrel but following the last advance in the Gulf Coast Field, this price has been raised 25 cents a barrel. The oil from this district is shipped in tank cars, as it is considered too heavy for pipe line service, the Mansfield Hardwood Lumber Co. receiving 15 cents a barrel for hauling the oil from the field to Reader, where it connects with main line service to Houston. The rate from Reader to Houston is 15½ cents a hundred pounds.

Union County Arkansas Completions

Completions in the Union County area of the Smackover Field during the past week numbered five, with one failure, and four pumpers having an aggregate production of 200 bbls.

The Magnolia Petroleum Co. completed Campete-Campbell B-3, Section 13-16-17, pumping 70 bbls. at 2,318 feet.

Nikander and others abandoned No. 1 Dumas, Section 28-16-15, at 1,775 feet.

The Ohio Oil Co.'s No. 4 Scott, Section 19-16-15, made a 15-bbl. pumper at 2,117 feet.

Sam Richardson's No. 4 E. G. Murphy, Section 23-16-15, is blowing with air, and making 60 bbls. per day by heads, at 2,011 feet.

The United Central Oil Corp. completed No. 5 Craig, in Section 15-16-15, making a 55-bbl. pumper at 2,029 feet.

Ouachita County, Arkansas

In the Ouachita County area of the Smackover Field, there were six completions, including one dry hole and five pumpers with an aggregate production of 324 bbls.

The Crusader Pipe Line Co. has abandoned its test on the Snow lease in Section 22-13-16, at 2,505 feet. This test is 5 miles east of Camden.

The Duho Oil Co. completed No. 12 McKenzie, Section 36-15-16, pumping 30 bbls. at 1,998 feet.

The Magnolia Petroleum Co. completed No. 1 Clawson, Section 26-15-17, pumping 102 bbls. at 2,321 feet, and No. 3 Nettie Patton, Section 32-15-16, pumping 52 bbls. at 2,255 feet.

The Mazda Oil Co.'s No. 1 Fincher, Section 29-15-16, is pumping 100 bbls. at 2,258 feet.

Ramage and others completed No. 3 Jeffus, Section 25-16-17, pumping 40 bbls. at 2,344 feet.

Webster Parish, Cotton Valley

Another good well was completed by the Humble Oil Co. during the week, Bodcau B-1, in Section 24-21-10, coming in with an initial production of 2,500 bbls. at 2,517 feet. Arrangements were being made to pump at 2,515 feet when it was decided to drill 2 feet deeper with the resulting big well in 21 feet of sand, showing 10 per cent salt water and 2 per cent b.s. The Humble also completed No. 3 Merritt in Section 14-21-10, making a 70-bbl. pumper at 2,539 feet.

Bossier Parish

Skannall and others completed their second well on the McDade lease in Section 10-17-12, making 2,000,000 feet of gas at 2,480 feet. The well is 5 miles east of Shreveport, and constitutes a northern extension of the Elm Grove gas territory.

Union Parish

Danziger and others completed No. 1 Grayling, Section 32-21-4e, making 14,000,000 feet of gas at 2,133 feet. The well is 10 miles west and a little south of Bastrop in the northwest corner of the Monroe gas field.

Drilling Operations

Union County, Arkansas: The Amerada Petroleum Corp. is fishing for 6-inch casing at 1,083 feet in No. 1 Galloway, Section 4-16-15; Arkansas Fuel Oil Co. is moving in rig on location for No. 5 La Grone, Section 1-16-17; Arkansas Invincible Oil Co., set 10-inch casing at 100 feet in No. 1 Patterson, Section 12-16-17, and drilling at 2,500 feet.

Baggott and others set 6-inch casing at 2,043 feet in No. 1 Clark, Section 21-16-15; H. E. Clark set 6-inch casing at 2,230 feet in No. 2 Neely, Section 1-16-17; Estes and others set 10-inch casing at 42 feet in No. 4 Freeman, Section 1-16-17.

The Field Operators Co. had 100 feet of oil in hole swabbed dry and had 39 feet of broken sand in No. 1 Kane, Section 12-16-16, and waiting orders at 2,022 feet; W. H. Gilliland arranging to test 6-inch casing at 2,050 feet in No. A-1 Hodges, Section 6-16-16; Gladys Belle Oil Co. drilling No. A-1 Thompson, Section 7-16-15, at 1,850 feet.

The Gulf Refining Co. set 6-inch casing at 2,210 feet in No. 22 L. Werner, Section 5-16-16; reaming to set 8-inch casing at 1,935 feet in No. 23 L. Werner, Section 6-16-16; Higgins Oil & Refining Co. set 15-inch casing at 40 feet in No. A-4 Murphy, Section 14-16-15, and drilling at 1,500 feet.

The Imperial Oil Co. set 6-inch casing at 2,182 feet in No. 3 Smith, Section 29-17-14; D. J. Johnson, trustee, set 10-inch casing at 83 feet in No. 1 Ford, Section 17-17-15.

E. M. Jones is drilling in gummy shale at 2,277 feet in No. 1 Murphy, Section 26-16-16; Kinnebrew and others, building derrick for No. 4 Williams, Section 3-16-15; Liberty Oil Co., building derrick for No. 1 Davis, Section 31-16-14.

The Lion Oil & Refining Co. tested open hole at 2,287 feet in No. 5 Graves, Section 3-16-15, with 8 feet of sand, tested 40,000,000 feet of gas, show of oil and large spray of salt water, trying to pull 6-inch casing to set deeper.

The Magnolia Petroleum Co. set 10-inch casing at 167 feet in No. 2 Goodwin-Campbell, Section 13-16-17; also set 10-inch casing at 147 feet in No. 1 Smith, Section 2-16-17; Marine Oil Co. set 8-inch casing at 1,910 feet in No. 2 Hays, Section 4-16-15, and bailing casing.

Marr and others are rigging up No. 1 Dumas, Section 15-17-16 to deepen. This was formerly reported abandoned at 2,142 feet as Rooker and others Dumas No. 1.

The Natural Gas & Petroleum Co. set 6-inch casing at 2,505 feet in No. 3 Frazier, Section 1-18-14; P. F. O'Brien, rigging up No. 1 fee, Section 13-19-17, and waiting on water; Pure Oil Co. bailing to test 19 feet of broken sand at 2,020 feet in No. 10 Craig, Section 15-16-15; waiting on standard rig with 300 feet of oil in hole at 2,123 feet and 14 feet of sand in No. 3 Wilson, Section 20-16-15.

Ray and others swabbed salt water at 2,212 feet in No. 1 Long, Section 28-16-4, and plugged back 5 feet at 2,207 feet. Rutledge and others set 6-inch casing at 2,243 feet in No. 3 Meek, Section 6-16-16; Simms Oil Co. tried to set 6-inch casing at 2,267 feet, sidetracked boulder at 500 feet, and drilling at 1,000 feet in No. 1 Laney heirs, Section 8-16-16.

Sutherland and others set 10-inch casing at 77 feet in No. 3 Neely, Section 1-16-17, and drilling rock at 1,275 feet; The Texas Co. tested dry at 2,307 feet, No. 1 McAdoo, in Section 15-16-16, showing oil and salt water; running core barrel at 2,330 feet.

Wabler and others are trying to set 8-inch casing at 2,195 feet in No. 1 Williams, Section 36-17-14; Weatherbee and others set 10-inch casing at 106 feet in No. 3 Rice, Section 6-16-16; Nye Wilson set 6-inch casing at 1,901 feet in No. 3 Hays, Section 4-16-15.

Ouachita County, Arkansas

The Arkansas Invincible Oil Co. tested dry at 2,258 feet No. 3 Myar Estate, Section 30-15-16, and bailing to test 27 feet of broken sand at 2,277 feet; Bray-Hawthorne bailed No. 1 Copenhaven, Section 13-15-17, dry at 2,166 feet, and drilling at 2,192 feet; Burton Trustee, derrick up for No. 11 Hughes, Section 21-15-16.

H. E. Clark set 10-inch casing at 6[illegible] feet in No. 1 Smith, Section 26-15-17; set 10-inch casing at 43 feet in No. 1 Yarborough, Section 26-15-17; Clark & Melat bailing to test 25 feet of broken sand at 1,965 feet in No. 2 Murphy, Section 4-16-15.

The El Dorado Union Oil Co. is bailing to test 27 feet of broken sand at 2,262 feet in No. 7 Hughes, Section 28-15-16; Forest City Box Co., derrick up for No. 1 Fee, Section 31-15-16; Galloway and others waiting on standard rig with 1,600 feet of oil in hole and 10 feet of sand at 2,271 feet in No. 5 Hughes, Section 28-15-16; rigging up to deepen No. 6 Hughes, same section, from 2,290 feet. This was formerly completed swabbing 200 bbls. at 2,220 feet.

Hildreth and others are drilling No. 1 Mullin, Section 27-15-16, at 2,000 feet; Hunt and others derrick up for No. A-1 Anderson, Section 23-15-17, and set 10-inch casing at 47 feet in No. B-2 Green, Section 23-15-17.

Hurley and others set 10-inch casing at 75 feet in No. 4 Stringfellow, Section 28-15-16.

Magnolia Petroleum Co. is rigging up No. 3 Brown, Section 26-15-17; set 10-inch casing at 123 feet in No. 4 Nettie Patton, Section 32-15-16; drilling No. 3 W. F. Patton, Section 31-15-16, at 1,500 feet.

The Marr Oil Corp. is rigging up to deepen No. 3 Mullins, Section 28-15-16, from 2,002 feet; McCorkle and others waiting on 6-inch casing at 1,875 feet in No. 2 Smith, Section 25-15-17; J. H. Meek, Trustee, set 6-inch casing at 1,960 feet in No. 2 Laney, Section 30-15-15; Morris Drilling Co. set 6-inch casing at 2,220 feet in No. 2 Mullins, Section 27-15-16.

Reynolds & Thompson are rigging up No. 1 S. A. Graves, Section 16-14-13; Riggs and others rigging up No. 1 Green, Section 23-15-17; Ross and others rigging up to deepen No. 1 Stringfellow, Section 28-15-16, from 2,005 feet.

J. S. Smith has derrick up for No. 1 Shirey, Section 36-15-17; Sun Oil Co. arranging to test 16 feet of sand at 2,253 feet in No. 1 Hardin, Section 27-15-16; Winner and others set 10-inch casing at 64 feet in No. 1 Schoolhouse, Section 20-15-16, and drilling at 1,500 feet.

Webster Parish

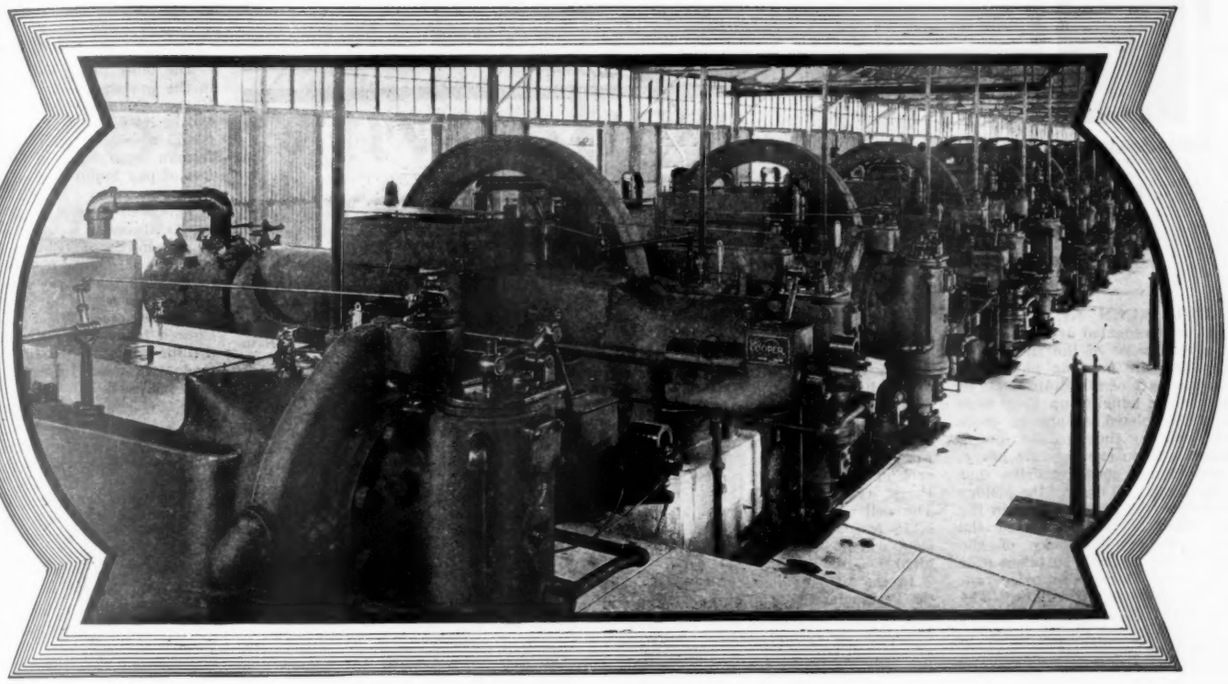
The Cotton Valley district is being steadily extended both to the southeast and southwest and indications are the discovery wells were on the edge of the pool and the best producing territory of the district is now on the point of development.

Drilling operations have been carried across the stream of water which up to the present has defined the eastern limit of development, and two important locations have been made during the week. The Alabama Petroleum Co. will drill on the Coffee lease in Section 19-21-9, east of the Humble's big well in 24, and a little farther north the Woodley Petroleum Co. is rigging up for a well on the A. J. Hodges lease in Section 18-21-9.

In the southwestern extension of the field, the Alabama Petroleum Co. is rigging up to drill No. 1 Smith in Section 29-21-10, half a mile west of the Humble's big well on the Gray lease; the Louisiana Oil Refining Corp. set 10-inch casing in No. 1 and has derrick up for No. 2 Nelson in Section 28-21-10, and directly south of the original pool and between the new eastern and western extension, the Humble Oil & Refining Co. has derrick up for No. 1 Gray in Section 26-21-10. Derrick is up for another well south of the discovery well, to be drilled by the Ohio Oil Co. on the Holloway lease in Section 23-21-10.

The Alabama Petroleum Co. has purchased the half interest which Moffatt & Murphy held in the Pardee lease and on which they drilled the big well in Section 24, and has made several new locations. No. 3 Pardee is drilling in chalk rock at 2,100 feet and derricks are up for No. 4 and No. 5 in Section 24-21-10. Moffatt

(Continued on Page 114)



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By Vern T. Whitney

Henry Oil Co. gets 20-bbl. well in Owsley County, 18 miles from nearest production at Idamay; Union Gas & Oil Co., 70-bbl., 60-bbl. and 30-bbl. producers in North Weir Field. Consolidated Gas Co.'s 23-bbl. pumper in Barren County may open new area north of Glasgow. J. J. Fort, 35 bbls., Warren County.

BOWLING GREEN, Ky., Nov. 17.—Due to the unprecedented dry weather of the past month, most of the rigs in the Kentucky fields are running part time. In the eastern part of the State, most of the operators are hanging up their tools as wells are completed, as present crude prices will not pay them to run during winter months, when expenses are heavy.

It is rumored, on good authority, that possibly the largest oil deal in the history of the State may be consummated in the immediate future. It is reported the holdings in eastern Kentucky of the Union Gas & Oil Co. will be taken over by the Swiss Oil Corp. at a price running up into millions of dollars. The Union Gas & Oil Co.'s holdings comprise in the neighborhood of 13,000 acres, located in the Weir sand field of Johnson and Lawrence Counties, with over 500 wells and 2,500 bbls. daily production.

In Morgan County, H. R. Danner and J. N. Thompson have taken over the holdings of the Collier Oil & Gas Co., in the Cannel City Pool. This includes 14 wells making 30 bbls. daily production, from a depth of 1,600 feet. In this pool one of the oldest and largest wells in the State was drilled a number of years ago, coming in for 2,000 bbls., which production was maintained for several months.

Danner and Thompson have also taken over three gas wells at West Liberty, in Morgan County, together with pipe line and franchise to furnish gas to West Liberty.

D. T. Bolling and John M. Loman have purchased the H. Shannon 73 acres, in the Richpond Pool, south of Bowling Green, in Warren County, with one well just finished for 30 bbls. flush from the shallow sand.

Standard of Kentucky Enters

While the Standard Oil Co. of Kentucky has heretofore kept out of the producing end, it is reported it has secured a large acreage in Clay County, south of Owsley County, in the eastern division, and is arranging to drill a test well.

A recent wildcat drilled by Dulin and associates on Sexton Creek in the southwestern part of Clay County is dry at 1,600 feet. A showing was had in this test, according to reports, at 1,400 feet.

Week's Work

A summary of the week's work in the whole of Kentucky shows a decrease of 90 bbls. in flush production, the same number of completions, 2 more producers, 1 less dry hole and 1 less gas well, compared with the previous week. The wells were distributed by counties as follows:

County—	Comp.	Prod. Wells	Prod.	Dry	Gas
Barren	7	4	44	3	0
Lee-Owrley	6	5	60	1	0
Lawrence-Johnson	5	5	167	0	0
Allen	5	2	15	3	0
Johnson-Magoffin	3	2	9	1	0
Wayne	3	1	10	2	0
Martin	2	0	0	2	0
Warren	2	2	42	0	0
Owensboro district	2	0	0	2	0
Cumberland	1	0	0	1	0
Clay	1	0	0	1	0
Wolfe	1	1	15	0	0
Morgan	1	0	0	1	0
Total	39	22	362	15	2
Last week's total	39	20	452	16	2
Difference	0	2	90	1	1

Lee-Owsley County

The Henry Oil Co.'s test on the Daniels-Foreman tract has just been completed and is estimated at 20 bbls. The Cumberland Pipe Line Co., Inc., has finished making a test of this well and is extending its line to connect it up.

This is by far the most important completion in the eastern division outside of the discovery well of the Idamay Field during the past year. It is 18 miles from the nearest production at Idamay on Upper Buffalo Creek waters of the South Fork of the Kentucky River, in the long neck of Owsley County, where Breathitt, Perry, Owsley and Clay Counties join. The well was finished at a total depth of 1,118 feet and shows 11 feet of Maxon sand which was shot with 40 quarts of nitro.

In the Idamay district of Lee County the Petroleum Exploration and Hupp and Duff finished Nos. 10 and 11 Spencer Flannery for 15 and 5 bbls., respectively, at approximate depths of 1,200 feet. In the same district, the Petroleum Co.'s No. 1 Gourley, Redman and McGuire showed 10 bbls. after a shot. French and others' No. 1 Dora Mays put 10 bbls. in tankage from an approximate depth of 1,400 feet.

A semi-wildcat on the Jonas Rowland farm, drilled by the Petroleum Exploration, was dry and plugged.

The Petroleum Exploration's No. 5 on the Kendall Brothers farm, near Cannel City in Morgan County, was dry and abandoned at about 1,650 feet.

North Weir Field

In the North Weir Field of Lawrence and Johnson Counties, the Union Gas & Oil Co. scored the largest wells of the week in the entire State. This company's No. 29 P. P. Holbrook in district No. 32, started off making 70 bbls. flush at 744 feet. Sand from 680 to 744 feet was shot with 55 quarts of nitro.

In district No. 33, the Union's No. 17 Levisa Skaggs showed for 60 bbls. flush after the sand from 670 to 747 feet was treated to a 80-quart shot. The well finished at 776 feet. On the John Rose farm, same district, No. 4 showed for 30 bbls. flush from the Weir sand at approximately 800 feet. In this same district, the No. 6 Ira Lester of Fred Stone and associates pumped off at 2 bbls. from the Weir sand.

In district No. 22-A, the Indian-Tex Petroleum Co.'s No. 4 J. C. Gilliam, No. 2 farm, showed for 5 bbls. from the Weir sand.

South Weir Field

In the South Weir Field, comprised of parts of Johnson and Magoffin Counties, the Carter Oil Co.'s No. 3 W. H. Collins, district No. 27, made 5 bbls. on jack at 870 feet. In district No. 29, the Carter's No. 5 Charles Wheeler was pumping 4 bbls. from the Weir sand.

The wildcat test of the Petroleum Exploration on the Elk Horn Coal lands on Oakley Creek in southeastern Magoffin County was dry and abandoned at a depth of 1,300 feet.

Martin County

Activity in the oil and gas development of Martin County is now being resumed. The Big Derby Oil & Gas Co., of Columbus, Ohio, is drilling a well on the Alfred Carter lease about 2 miles above Inez on Coldwater Fork of Rockcastle Creek. This company finished No. 2 Dempsey for 2,500,000 feet of gas and No. 2 Blankenship for an estimated 2,000,000 feet of gas.

The McCombs Producing & Refining Co. scored a 15-bbl. pumper in No. 9 on the Ann Horton farm, district No. 9, in Wolfe County, at a depth of 1,322 feet. Sand from 1,311 to 1,322 feet was shot with 40 quarts of nitro. In this same district the Atlantic Oil Producing Co. recently finished a 100-bbl. producer on its James Roberts farm, 2 miles south of the Old Campton Pool. This county is in line for work next spring and it is thought some new territory will be opened when the drills get busy.

Wayne County

Reports from Wayne County show two dry holes and one producer were completed during the week. Development work is being held up due to the lack of water and rigs are only running one or two days a week.

In district No. 2, at Oil Valley, the Superior Oil Corp.'s No. 6 James Dabney is classed as a 10-bbl. pumper at around 750 feet.

A Big Sinking, district No. 5, Bowden & Co.'s No. 1 on the L. N. Morrow was dry at approximately 805 feet. No. 2 was nearing the sand and will be shot the first of the week.

In district No. 13, C. E. Daugherty got a duster in No. 2 on the Ira Guffey place in the regular pay sand of the county.

New Map of Paint Creek Uplift

The Kentucky Geological Survey has produced a unit map of the entire Paint Creek Uplift which supports the largest oil and gas producing area of the State and comprises part of Johnson, Magoffin, Floyd, Morgan, Lawrence and Elliott Counties, according to Willard R. Jillson, director.

"The principal producing areas shown are the Oil Sprigs Pool of Johnson and Magoffin Counties, and the Martha Pool of Lawrence, Johnson and Magoffin Counties," he states. "It is the large and staple production from these sections that has enabled Kentucky to retain its lead in the Appalachian region in oil production."

Western Division

The most important well of the week in the western division was completed in Barren County by the Consolidated Gas Co. in its No. 1 test on the Hall Baker farm, which is pumping 23 bbls. daily from a total depth of 506 feet, with 2½ feet of pay found 35 feet below the black shale.

This well created quite a bit of interest as it opens a new prospective area to the north of Glasgow. It is three-quarters of a mile from the nearest production on the Barry lease and is 4,000 feet southeast of a gas well recently drilled by the Wood Oil Co. on the Church farm. The Wood Oil Co. is now drilling an offset to the Baker and has made two other locations which will be direct offsets.

The test drilled by Lewis J. Emery, Jr., & Sons on the Dick Bridges farm between Bon Ayr and Glasgow Junction has been abandoned for the present at a total depth of 1,514 feet, reported to be 74 feet below the Pencil Cave formation. The shale was found at from 405 to 465 feet. Two gas showings were picked up—the first at 260 feet and the other at 485 feet. A second test on this farm is being started 1,000 feet from No. 1.

The wildcat on the Mack Mansfield farm, owned by the Esslinger Oil Co., has been abandoned at a reported depth of 760 feet. Shale was found from 269 to 323 feet. It is 3 miles southwest of Glasgow between the Jackson Highway and the Lower Bowling Green road.

T. L. Gorby's No. 2 Cassidy, 2 miles southwest of the Emery-Moore Pool, is showing for a 6-bbl. pumper at a total depth of 465 feet. Shale was from 234 to 286 feet and the sand from 457 to 465 feet, which was shot with 30 quarts of nitro.

The JCS Oil Corp.'s No. 1 M. Martin at Oil City is good for 3 bbls. at 382 feet. Shale was found from 310 to 366 feet.

The Carter Oil Co. finished its nineteenth straight producer in the Emery-Moore Pool, west of Glasgow, in its No. 3 Goodman at a total depth of 519 feet. The sand from 503 to 511 feet filled the hole to the extent of 50 feet with oil before being shot and after being shot

(Continued on Page 104)

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Nov. 15.—In the Canadian West, Royalite Oil Co. No. 4, Section 7-20-2w5, in the Okotoks fields southwest of Calgary, which came in a few weeks ago with an estimated gas production of 21,500,000 feet a day recently caught fire, and at last reports was still burning.

In the border field, east of Coutts Imperial Oil, Ltd. No. 2 Dead Horse Coulee, is reported drilling around 1,000 feet with a rotary outfit. This test is about a mile north of the Rogers-Imperial gasser on Section 29-1-11w4, but lower on the structure. Reports have been current in Lethbridge of an oil strike at this well, but these are stated by T. Draper, western production manager of Imperial Oil, Ltd., to be absolutely incorrent. At 1,000 feet no oil had been encountered, and the drill was not within 800 feet of the red beds where the best chances of commercial oil production were looked for.

Canadian Oil & Refining (Rogers-Imperial) Section 29-1-11w4, has not yet resumed drilling, and there is a prospect that no further work will be done on this test till next spring. Except for the Dead Horse Coulee test, drilling in the border field is at a standstill.

In the Medicine Hat Field, the new Medicine Hat municipal test for gas on Crescent Heights, north of the Margrave well, is reported drilling near the 1,200-foot sand where production is looked for. The first gas was encountered at 850 feet and cased off. A regulator house is under construction at the new well, and when the test is finished the gas will be turned into the city mains at once.

Many Island Lake

In the Many Island Lake district, northeast of Medicine Hat, Community Oils, Ltd., Section 19-14-1w4 has shut down after drilling 105 feet below the casing. Work will be resumed on this test in the spring. Many Island Oil & Gas Co. Drazen No. 1 has also shut down for the winter. Operations on both sides of the Montana-Alberta boundary have been hampered by cold weather and a heavy snow fall. In the Kevin-Sunburst Field the Campbell-Rhinesmith-Stewart test 2 miles northeast of Kevin is reported good for 100 bbls. at 1,300 feet depth and is being drilled into the sand to increase production. Eagle Oil Co. has spotted No. 1 test on Section 6-34-3w. The field is now reported to have 207 producing wells with about 40 rigging up or drilling.

The Alberta Refining Co., operating a small plant at Coutts, Alta., is reported to have declared a 25 per cent stock

(Continued on Page 102)

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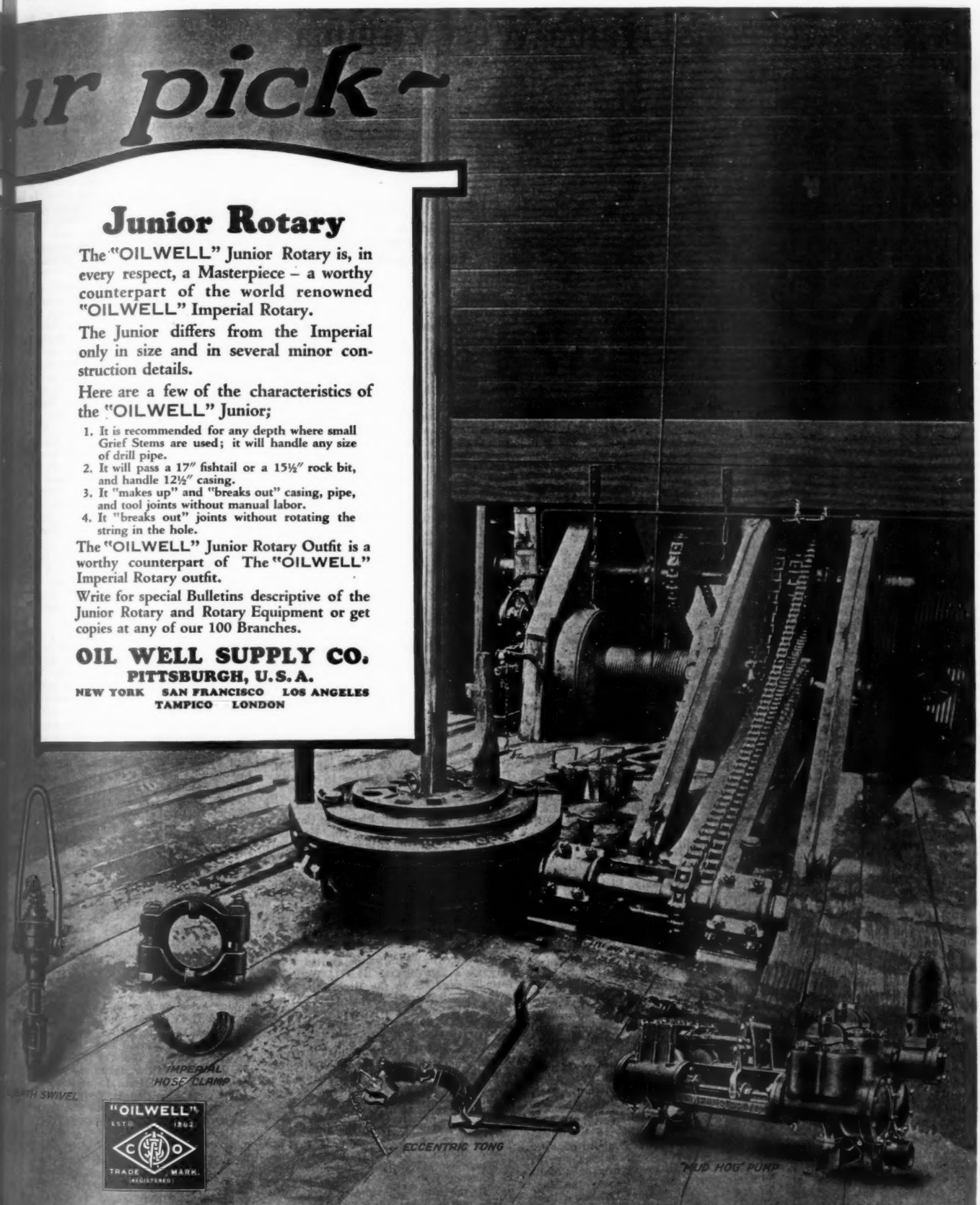

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Pennsylvania-West Virginia

By D. S. Wakenight

Glenn, Tague & Zahniser well, Bowling Green Township, Licking County, Ohio, produces 110 bbls. Pure Oil Co.'s well in Morgan County good for 50. Tague, Lutton & Co.'s Washington County, Pa., well down to 110 bbls. Knight Farm Oil Co. gets 12 or 15-bbl. producer in Pleasants County, West Virginia.

PITTSBURGH, Pa., Nov. 17.—With general conditions continuing to improve, operators and producers in the eastern fields are looking forward to an advance in the crude market. In anticipation of such movement producers are again holding their credit balances and causing the pipe line companies some concern as to their ability to take all the oil offered. Their storage tanks are fast reaching the limit of their capacity. Unless producers show a willingness to help out by selling their credit balances it will be only a matter of time until the pipe lines will again have to resort to prorating. Producers have but a limited amount of storage at the wells and when the tanks have been filled it will necessitate the shutting down of the wells for a part of the time at least. The refineries in Pittsburgh are nearly all running to capacity and using principally Pennsylvania crude.

Field Developments

Since the eastern fields were last reviewed there has been very little development calling for extended mention. In the local fields, Tague, Lutton & Co.'s second test on the B. G. Lutton farm, drilled into the fourth sand 10 days ago, located in North Strabane Township, Washington County, Pennsylvania, was of greatest interest. When first drilled into the fourth sand pay it had an initial production of 400 bbls. the first 20 hours. It then started to decline and is now down to 110 bbls. a day. The first well was completed on this farm about three months ago and is still holding up around 25 bbls. a day.

The southeastern Ohio fields completed but two fair producers, one deep and the other a shallow sand producer. The deep sander is the better of the two and is Glenn, Tague & Zahniser's second test on the George M. Bowers farm, in Section 13, Bowling Green Township, Licking County. The first 24 hours after drilled through and shot in the Clinton sand it produced 110 bbls. The location is 600 feet north of the first test. The good shallow sand producer is the Pure Oil Co.'s No. 4 on the William Epply farm, in Section 28, York Township, Morgan County. It produced 50 bbls. the first 24 hours after completed and shot in the Berea grit. All other completions in the southeastern Ohio fields came in light pumpers, gas wells or dry holes. In Section 2, Jefferson Township, Noble County, E. A. Metcalf & Co.'s No. 6 on the George Heddleson farm is a light pumper in the Buell Run sand. In Section 31, Enoch Township, H. H. Moseley and others have a dry hole at No. 3 on the L. W. Moreland farm.

Licking County

In the Berea grit territory in Franklin Township, Licking County, Moore & Adams completed No. 5 on the T. L. Stevens farm good for 3 bbls. a day in the Berea grit. In Madison Township, Licking County, W. W. & A. T. Wehrle have a still lighter pumper in the same formation at No. 5 Susan Harr farm. In the same township, the same parties are drilling Nos. 7 on the Frank Darnes and James Taylor farms. In Section 20, Reading Township, Perry County, the Planet Oil Co. and others have a 5-bbl. pumper in the Clinton sand at No. 3 on the S. B. Dittoe farm. In the old Corning Field, Section 33, Pleasant Township, in the Berea grit No. 9 on the Elizabeth Berris farm, good for 5 bbls. a day. In Section 22, Knox Township, Columbiana County, A. H. Cameron & Co.'s second test on the George Shively farm is good for less than 1 bbl. a day in the Berea grit.

In Independence Township, Washington County, the Allegheny Oil Co. & Ortz completed the Forest Oil & Gas Co. and others have a light gasser in the Big Injun sand at a second test on the William Eckert farm.

Starting New Work

In Lot 8, Hanover Township, Licking County, the Carter Oil Co. is drilling another test on the O. E. Romine farm. M. F. Whitehill & Co. are drilling on the Jay Crawford farm. In the same township, the Edward H. Everett Co. started to drill on the N. F. Romine farm. The Ohio Fuel Supply Co. is drilling its test on the Noah Johnson farm from the Berea grit to the Clinton sand. In Section 26, Ludlow Township, Washington County, Savage & Co. are drilling another test on the D. B. Mulinex farm. In Liberty Township, the Dutch Oil Co. has started to drill on the Chris. Oliver farm. In Washington Township, Monroe County, the Carter Oil Co. is drilling a second test on the N. F. McCaslin farm. In Guernsey County, the Ohio Fuel Supply Co. is drilling at 2,200 feet on the William Snell farm. The same company is down 1,800 feet on Henry Cornelius farm. Same company is drilling tests on the J. H. Mackley and Charles Williams farms and skidding the rig on the William Abbott farm. The Ohio Oil Co.'s test on the James Mercer farm is drilling at 1,700 feet. Cline & Co. have started to drill to the Clinton sand a test on the F. C. Neatch farm.

Week End Completions

In Newton Township, Licking County, Jones & Reese completed No. 5 on the James McKinney farm good for 4 bbls. a day in the Berea grit. In Section 22, Knox Township, Columbiana County, A. H. Cameron & Co. have a very light pumper at No. 3 on the George Shiveley farm. In Section 19, Liberty Township, Washington County, Beeson Bailey & Co. completed in the second Cow Run sand No. 6 on the James R. Heslop farm, good for 10 bbls. a day. In Lawrence Township, the Brady Oil Co. & Deput Brothers are drilling a test on the James Martin farm, one-half mile southeast of production.

West Virginia Completions

Dusters and gassers were very much in evidence in the list of completions in the West Virginia fields. In Smithfield district, Roane County, the United Fuel Gas Co. has a Big Injun sand gasser at a test on the J. R. Young farm. In Mannington district, Marion County, the Manufacturers Light & Heat Co. has a light show of oil in the 50-foot sand at a test on the A. W. Beatty farm. In Grant district, Ritchie County, Elder & Co.'s test on the Ray Haney farm is a light oil producer in the Maxon sand. In Murphy district, the Hope Natural Gas Co. has a light pumper in the Maxon sand at a test on the Sidney Jordan farm. In De Kalb district, Gilmer County, the Laurel Run Oil Co.'s test on the Ellen B. Gainer farm is dry in the Big Injun sand. The Manufacturers Light & Heat Co. has a gasser in the Gordon sand at a test on the T. L. Mackey farm, in Marion County. In Clay district, Wetzel County, Schultz & Fahey have a gasser in the Cow Run sand at a test on the J. L. Kimball farm. In Greene district, the Silver Hill Oil Co.'s test on the D. M. Wade farm is good for 10 bbls. a day in the Gordon sand.

Showing for Oil Producer

In Paw-Paw district, Marion County, the Owens Bottle & Machine Co. has a show for an oil producer in the Big Injun sand at a test on the Clayton heirs' farm. In Clay district, Monogalia County, Martin & Co.'s second test on the N. P. Fetty farm is a gasser in the same formation. The Columbia Gas Co. has a gasser in the Big Injun sand at a test on the Wilbur Adkins farm, in Union district, Lincoln County. In the same district, Roy & McComas have a gasser in the Big Injun sand at No. 5 on the Oliver Adkins farm. In Jefferson district, the Cambridge Gas Co. completed a Big Injun sand gasser on the A. L. Mullens farm. In Center district, Gilmer County, the Hope Natural Gas Co.'s test on the Abraham Miller farm is a gasser in the Maxon sand. In the same district, the same company has drilled down an old well on the R. J. Boggs farm. It is a fair gasser. In Center district, the McCall Oil & Gas Co. has a gasser in the Maxon sand at a second test on the Bennett heirs' farm. In DeKalb district, the Pittsburgh & West Virginia Gas Co.'s test on the B. F. Wright farm is a gasser in the Big Injun sand.

Pleasants County

In Jefferson district, Pleasants County, the Knight Farm Oil Co.'s No. 4 on the Josephine Knight farm is in the salt sand showing for a 12- or 15-bbl. pumper. On Bull Creek, Grant district, the Johnson Oil Co. has a very light pumper in the Maxon sand at a test on the J. Cokley estate. In Jefferson district, Marple & Carpenter have a 3-bbl. pumper in the Cow Run sand at a test on the H. Severn farm. On Little Sandy Creek, Elk district, Kanawha County, the United Fuel Gas Co.'s test on the H. D. Withrow farm is a gasser in the Big Injun sand good for 2,300,000 feet. On Barnes Creek, Big Sandy district, the same company has the rig completed for a test on the R. M. Ashley farm. On the waters of Big Coal River, Peytonia district, Boone County, the Owens Bottle & Machine Co. completed No. 21 on the Coal River Mining Co.'s property and dry in the Berea grit. In the same county, in Scott district, the same company has a fair gasser in the Berea grit at No. 4 on the Cassingham farm. In Union district, Pleasants County, the Monongahela Oil Co.'s No. 8 on the Don E. Wagner farm is good for 10 bbls. a day in the Cow Run sand.

Harrison County

The Hope Construction & Refining Co.'s test on the D. L. Nutter farm, formerly reported a producer, is a gasser in the fifth sand. In the same district, the same company's test on the T. M. Sullivan farm is a natural producer good for 15 bbls. a day in the 50-foot sand. In Ten-Mile district, C. T. Arnett & Co. have a gasser in the Maxon sand at a test on the Albert Lanhan farm. In Carroll district, Lincoln County, the Ray Oil & Gas Co. has a salt sand gasser at No. 1 on the Alonzo Barrett farm. In Curry district, Putnam County, the same company is due in the Big Injun sand at a test on the James Bays farm. On Oil Spring Run, Grant district, Ritchie County, R. G. Wiles has a 3-bbl. pumper in the light oil sand at No. 5 on the West Virginia tract. In Union district, the Carnegie Natural Gas Co. has a show for a fair producer in the Maxon sand at a test on the Creed Richards farm. In Grant district, the Cold Test Oil Co.'s No. 14 on the West Virginia tract is a very light pumper in the salt sand. In Clay district, Wood County, the Big Sand Oil Co.'s test on the J. L. West farm is dry in the second Cow Run sand. At Pleasant Hill, Walker district, Leeton & Zinn are building the rig for a test on the John Coplin farm.

Deep Test in Cabell County

On Merritt's Creek, McComas district, Cabell County, the Monickel Gas Co. has drilled a deep test on the Ryan Schaub farm. It is a light gasser at a depth of 3,100 feet. In order that the test be completed it was drilled to a total depth of 3,528 feet. Nothing was found in any formation after drilling through the Gordon sand. In Church district, Wetzel County, the Carnegie Natural Gas Co. has a Maxon sand gasser at No. 3 on the F. M. Anderson farm. In Liberty district, Marshall County, James Braden & Co. completed a gasser in the Big Injun sand at a test on the Robert M. Bonar farm. In Smithfield district, Roane County, the United Fuel Gas Co.'s test on the C. E. Monroe farm is a gasser in the Big Injun sand. In Grant district, Ritchie County, R. Pope & Co. drilled their old well on the N. T. Mason farm from the Keener to the Squaw sand. It is a gasser in the lower formation. In the same district, Nay & Kintzer have a gasser in the Keener sand at a test on the Okey Howard farm.

Tests in Old Territory

There are a good many test wells under way and starting, mostly in the old districts, but somewhat important. The work is started with a view to testing for oil or gas and if neither is found in commercial quantities the leases will be surrendered and thereby stop paying rental. In Sheridan district, Calhoun County, the Hays Oil Co. has started to drill a test on the E. Raybuck farm. In Lee district, Martin Crawley is delayed with a crooked hole at 1,550 feet on the Joel W. Holbert farm. In a number of districts wells that should have been well towards completion have been shut down on account of the shortage of water. In Lee district, the Hope Natural Gas Co. is shut down for this cause on the Albert Bell farm. In Sheridan district, the same company has shut down to repair the rig on the Ayers-McNulty farm. The rig for a test on the J. W. Richards farm has been completed. In the same district, W. H. Bickel has shut down for water on the Alpheus Holbert farm. G. L. Cabot is drilling at 2,100 feet on the Bell heirs' farm. The Penn Royal Oil Co. is rigging up at its old No. 1 on the Taylor heirs' farm. The Manufacturers Light & Heat Co. has started to drill on the Moses Bartrug farm, in Church district, Wetzel County. In Grant district, the Hope Natural Gas Co. is drilling on the Jefferson Miller farm and made a location on the Hiram Lemasters farm.

Roane County Tests

In Spencer district, Roane County, the United Fuel Gas Co. is building a rig on the C. C. Riddle farm. In the same district, the Carter Oil Co. is due in the salt sand on the Craig heirs' farm. In Washington district, Calhoun County, the Euclid Oil Co. has started to drill on the P. A. Reip farm. In the same district, the Hope Natural Gas Co. has made a location on the Bee Hopkins farm. In McComas district, Cabell County, the Commercial Gas Co. is drilling to the lower sands its test on the R. Schaub farm. In Laurel Hill district, Lincoln County, the Columbia Gas Co. is making a deep test on J. C. Cline farm. It has now reached a depth of 3,350 feet. The West Virginia Central Gas Co. has started to drill a second test on the O. G.

(Continued on Page 102)

Significant!

The following item, taken from Page 48 of the October 30 issue of *The Oil and Gas Journal,* is of special significance to operators interested in *uniformly clean, straight holes:*

"The Union Oil Company of California is drilling about 48 miles west of Raton on the Vermejo structure, is down 3150 feet and in a very hard formation. Some trouble has been had with a crooked hole *but the crew now has a SPIRAL STEM and has eliminated the difficulty.*"

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Rocky Mountain Area

By F. B. Taylor

Midwest Co. has nine producers in Salt Creek. Water becoming scarce and shutdown likely unless rain comes. Producers & Refiners' well on Simpson Ridge Dome passes 6,000 feet, deepest test in that region. Two deep wells drilling in Grass Creek Field. Bowes Dome, Mont., wildcat nears completion.

CASPER, Wyo., Nov. 15.—The Midwest Refining Co. completed nine new producers in Salt Creek Field the past week. The Midwest Oil Co. has a well on Section 34-40-79 at 1,471 feet that started off at 110 bbls. and another on Section 2-39-79 at 1,690 feet that is a small pumper. The same firm has a producer good for 130 bbls. on Section 26-40-79 at 1,470 feet and one on Section 25-40-79 at 1,475 feet that started off at 100 bbls., also one on Section 35-40-79 and started off at 200 bbls. at 1,095 feet in the first Wall Creek sand and a producer from the second Wall Creek sand at 2,350 feet on Section 11-40-79 that is making 200 bbls.

The Wyoming Associated Oil Co. completed a prdoucer on Section 2-39-79 at 1,776 feet that started off at 350 bbls. and one on Section 34-40-79 at 1,775 feet that will make 200 bbls. The same firm has a producer on Section 34-40-79 at 1,552 feet that is good for 150 bbls.

The Marine Oil Co. has shut down many of its drilling wells in Salt Creek due to the approach of winter and the company now is busy on only two holes. The Wyokans No. 5 is putting new flues in boiler and will start drilling in a day or so on Section 18-40-78 and the Wyokans No. 6 has run the 12½-inch casing and is drilling about 200 feet on the same section.

The Producers & Refiners Corp. has also shut down most of the work in Salt Creek on the leases of the company and the deep well of this firm drilling on Simpson Ridge Dome in Carbon County is past the 6,000-foot horizon and in shale. This is now the deepest well ever drilled in this part of the country and affords much information regarding the geology of that structure. The well is now being drilled as a test of the Dakota formation which is expected around 6,500 feet.

The Producers & Refiners Corp. is running two strings at the Wertz Camp in the Lost Soldier in spite of the weather and expects to complete these two wells, one on Section 7-26-89 is at 3,775 feet and the other on the same section is at 3,195 feet. In the Ferris Field, east of the Lost Soldier, the firm found a producer at 2,695 feet though no estimate has been made of the size, location in Section 25-26-87. On Section 27-26-87 the company has a well nearing completion at 2,555 feet and one on Section 32-26-87 at 1,905 feet.

Sand Draw Field

In the Sand Draw Field in Fremont County the Producers & Refiners Corp. has one well drilling at 2,175 feet that will be used to supply gas for the lines of the company that carry gas to Riverton, Hudson & Lander, in the Baxter Basin the firm is drilling at 2,030 feet on Section 13-17-104 and the Producers & Refiners Corp. has a well drilling in Utah in the Clay Basin structure on Section 22-3-24 that is at 3,700 feet and underreaming.

The Producers & Refiners Corp. has started a rig on the Murphy Dome in Hot Springs County. This structure was tested several years ago by the Ohio Oil Co. and showed for production but the Ohio has not done much with it since then. The Producers & Refiners Corp. appears to have some good looking leases and will drill a test during the winter.

Two deep wells are drilling in the Grass Creek Field in the Big Horn Basin. This field is a light oil producer from a comparatively shallow depth of about 1,000 feet but the Ohio Oil Co. has discovered production of black oil in the Tensleep and Amsden sands about 3,500 feet and both the Midwest and Ohio are drilling deep holes to this sand.

The Midwest Refining Co. lost a rig by fire in the Lake Basin Field in Montana the past week when a gas pocket in the shale under the Eagle sandstone blew out and caught in the derrick. The rig will be rebuilt at once.

The wildcat being drilled on the Bowes Dome near Great Falls, Mont., by the California is at 2,500 feet and is expected to complete shortly. This wildcat is on a promising structure and is expected to open up a new field if it comes in a producer.

Water Scarcity

Water for field work is becoming very scarce in Salt Creek and unless warm weather melts the snow there shortly and brings rain, the work will have to shut down in many outer operations. The Midwest is better situated than most other companies as it is taking water from Nine Mile Lake near Casper and pumping it to the field where the company has two 55,000-bbl. tanks for water storage, but the other companies are hard put to find water to run their wells.

The new electric plant is nearly finished. Electricians have been making the last installations at the plant and the wires have been strung into the field and are now being run to the wells where motors are being set. This big plant will require a large water supply but due to the break in the spillway last spring that carried away a large part of the dam, there is no water impounded at present. It is now thought the electrical plant will be ready for operation by December 1 if water can be had. Each well will be operated by a separator motor of small horse power for pumping; if it is necessary to clean out or drill the well deeper, a large motor will be installed and the motor blocks are built to carry either type.

The plant is designed to handle about 4,500 to 5,000 wells ultimately, though at present it will have about 2,000 pumping and drilling wells to operate.

In Wyoming the fields are shutting down all work that does not have to be done on account of winter; many of the wildcat well are also closed down until spring. In the Lincoln County Field, in the southwest part of the State, the Midwest deep test is still shut down and probably will not start up before spring.

The Union Oil Co. is preparing to start drililng on the Lake Creek Dome about 40 miles east of Thermopolis. The Union is interested in the Hale Dome in that district and this is the second structure the company has taken over for development. The production is expected to be black oil.

The Big Sioux Oil Co.'s wildcat drilling on the Irvine structure southeast of Douglas in Converse County is expected in the Wall Creek sand at any time and will complete in the near future.

Colorado Operations

In Colorado the Craig Field in Moffat County is quiet. The Midwest, drilling on the Iles Dome, struck a water sand and then found a shale that is making some oil. This is the well reported as a producer some weeks ago, but the oil showing from the sand above the Dakota has gradually dropped to a very small production and does not look like commercial production now. Drilling is being continued to make a test of all formations.

The Union Oil Co. of California shipped its first oil out of the Fort Collins Field to the Mutual refinery at Florence and will make regular shipments every week. The first shipment amounted to about 8,000 bbls. and will be credited to the Midwest Refining Co. while the Mutual will transfer a like amount of crude from its Salt Creek holdings to the Midwest.

In Delta County, the Mid-Colorado Oil Co. found another show of gas at 1,275 feet on the Eckert Dome. This well had a gas flow estimated at 2,000,000 feet at 800 feet deep a few weeks ago and the present strike of gas is estimated at 500,000 feet.

The Union Oil Co. is drilling below the Dakota on the Douglas Lake Dome between the Wellington and Fort Collins Domes. The Dakota sand did not hold production as expected and a test of the formations below the Dakota will be made.

Work in Montana

The Coal Ridge structure in Cascade County, Montana, is attracting some attention. The first well drilled on this structure found a sand that held a good showing of light crude at 1,800 feet and which correlates with the Sunburst sand in that field. A second well was recently completed that failed to find the sand and passed through all formations to within a few hundred feet of the Ellis formation where the hole was lost. Now the operators are moving back to within a location of the first well and will drill a third hole. The work is being done by a Minnesota syndicate and the territory was taken over from the Tiger Butter Oil Co. on an operating contract. The second well is about 2 miles from the first and it is now considered that No. 2 was located off structure. The oil found in the first well is a good grade with a large gasoline content and was estimated at 8 bbls.

In the Sunburst Field, in Toole County, the Big West Oil Co., on Section 31-35-1 found a good producer in the Ellis sand at 1,448 feet, estimated at 60 bbls. The Campbell Syndicate and Rhinesmith, on the Stewart lease found the Ellis dry. The Fifty-Six Petroleum Co. also got a duster for its first well on the Murrill lease and went on to the Madison Lime which came in at 1,610 feet.

On Section 4-34-2, the Shoshone Oil Co. got a dry hole in the Ellis sand, but in this well a stray sand under the Sunburst sand had some gas and the well will be saved as a gasser to furnish fuel for the operation.

Black Oil Development

The Black oil development in the Rocky Mountain region has not advanced very much in 1924. This grade of crude can be made to produce lubricants, kerosene and gasoline with refining equipment suitable for such production, but the refiners so far have built their plants suitable for the lighter crudes and the supply has been such there has been little call for the black oils. As a result, most of the black oil fields are shut down waiting on the time when the supply of light oil is not sufficient to feed the demand.

There are about 14 black oil fields shut down in Wyoming and Montana and four producing. The production is mainly used for fuel oil and asphalt and the present production now being used runs about 80,000 bbls. monthly from all fields. The grades of asphalt produced from this black oil are excellent, in fact the asphalt appears to have qualities that make it better for road building than asphalt from other regions. Two of the largest fields have never produced any oil because of lack of markets, the Soap Creek Field of Montana and the Maverick Springs Field in Wyoming being shut in as there are no pipe line to either.

The people of Wyoming are awakening to the fact that good roads are a crying need and in 1925 it is expected a vast amount of road building will be done in which asphalt will play a large part. A proposition is now being placed before the legislature to place a tax of 3 cents per gallon on gasoline. With this tax, the promoters claim the black oil fields will have a demand for their production and the highways of Wyoming will become the best in this region.

Pipe Line Runs for Rocky Mountain Area

Salt Creek	66,320
Teapot	3,270
Big Muddy	3,520
Grass Creek	3,170
Elk Basin	1,040
Greybull	30
Rock Creek	3,300
Notches	110
Lance Creek	1,200
Poison Spider	330
Osage	330
Hamilton Dome	720
Lander	370
Byron	100
Pilot Butte	30
Lost Soldier	5,400
Ferris	110
Craig	1,315
Cat Creek	3,575
Sunburst	5,160
Miscellaneous	1,000
Total	90,540

Field Runs for October

Salt Creek	2,130,600
Teapot	72,270
Big Muddy	112,700
Grass Creek	96,830
Elk Basin	30,870
Greybull	720
Rock River	107,680
Rex Lake	1,160
Lance Creek	43,370
Notches	10,110
Poison Spider	33,210
Osage	10,510
Hamilton Dome	26,640
Mule Creek	6,000
Lander	9,110
Byron	2,000
Pilot Butte	2,000
Lost Soldier	157,300
Ferris	2,550
Craig	41,670
Cat Creek	113,905
Sunburst	162,010
Miscellaneous	24,365
Total	3,194,770

REQUEST CO-RECEIVER

PITTSBURGH, Pa., Nov. 17.—Appointment of a coreceiver for the Guffey-Gillespie Gas Products Corp. is asked in a petition presented in United States District Court by S. J. Richards & Co., Inc., and C. Freeman Olsen personally and doing business as C. Freeman Olson & Co. of Boston. A rule was granted by Judge Thomson returnable forthwith to show cause why a coreceiver should not be appointed. Former Judge Stephen Stone had been appointed receiver.

CHARLES A. MOULDING DIES

CASPER, Wyo., Nov. 15.—Charles A. Moulding, one of the best liked officials of the Producers & Refiners Corp. in Wyoming, dropped dead as he was leaving the P. & R. building in Casper. Mr. Moulding served for five years as chief clerk and superintendent. He was formerly at the Rawlins office and moved to Casper when the firm made this city its headquarters.

15,000-BBL. RUMANIAN WELL

A report from Bucharest says the Standard Oil Co. subsidiary, the Romano-Americano, has brought in a well at Runcu, Rumania, which is flowing over 15,000 bbls. a day, the largest flow ever recorded in Rumania.

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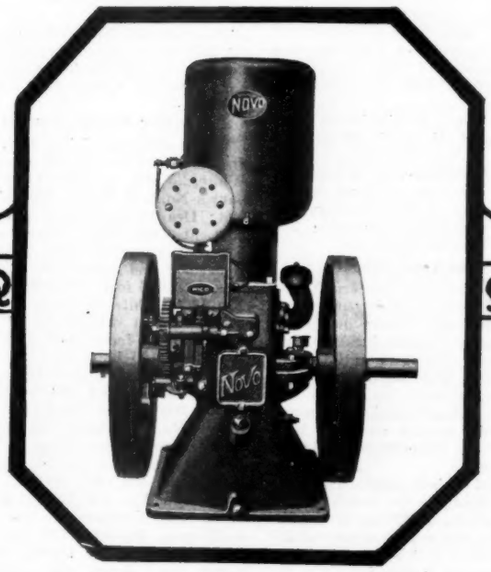


THE WICO ELECTRIC CO. SPRINGFIELD, MASS. U.S.A.

Branch at Tulsa

North-Central Texas Field

By Dan F. Dugan

Archer County led in number of completions, Consolidated Oil Co. having the largest number, in southern part of county near Olney. Texhoma Oil & Refining Co.'s No. 6-A Burnett, 140 bbls. largest in Wichita County. Dry hole in South Vernon Field. Large number of wells near completion in Wilbarger.

FORT WORTH, Tex., Nov. 17.—There was a slight gain in production in the North Central Texas Field during the past week. Total production for the week was 125,260 bbls., compared with 124,855 bbls. for the previous week, a gain of 405 bbls. in daily average. Gains were reported from Burkburnett, Electra and the Iowa Park district, while Stephens County, Eastland County and the wildcat districts recorded small and insignificant losses. Burkburnett gained 545 bbls. in daily average over the previous week. Electra showed a gain of 450 bbls. and the Iowa Park territory recorded a gain of 625 bbls. in daily runs. Stephens County lost 160 bbls. in daily average and Eastland County lost 305 bbls. while the loss in the wildcat districts amounted to 750 bbls.

Completions in the field the past week numbered 57 compared with 49 for the previous week, a gain of eight. There were 41 oil producers, a gain of 22 over the oil producers for the previous week. Dry holes numbered 14, a loss of 14 while there were two gas wells, the same number completed the previous week.

Archer County Led

Archer County led in the number of completions with 31, of which 24 were producing oil wells and seven were dry holes. Total new production from the 24 oil producers amounted to 5,595 bbls. daily.

The Consolidated Oil Co. (formerly Knight & Hines) secured the largest number of big completions in Archer County. This company's No. 5-D Ragle is a 400-bbl. producer, the No. 1-B Davis is good for 375 bbls., the No. 1-E Ragle is making 350 bbls., the No. 3-A Davis is good for 300 bbls. These wells are all in the southern part of the county near Olney.

Wichita County ranked second in the number of completions, with a total of 11, eight of which were oil producers. The largest completion in this county was the No. 6-A Burnett of the Texhoma Oil & Refining Co. which had an initial production of 140 bbls.

The recently opened deep pay in the South Vernon district in Wilbarger County was cut off to the north in the past week and extended a little to the south. Ray & Massie's No. 1 Dill, SE cor. SW NW SW, Section 84, Houston, & Texas Central Railroad survey, was abandoned as dry at 2,059 feet. A dry sand was found at 1,992-2,007 feet. This test is a quarter of a mile north of Bridwell & Heydrick's No. 1 Dill, which started off at 432 bbls. a day. About three-sixteenths of a mile south of the Bridwell & Heydrick well above mentioned Ray & Massie had better luck, their No. 1 Waggoner, NE cor. SE NE NE, Section 100 finding sand at 1,968 to 2,007 feet and the sandy lime pay at 2,028 to 2,050 feet. The well was flowing 100 bbls. an hour in its early stages.

The Winnipeg Oil Co.'s No. 2 Bond, Section 100, H. T. C. Survey, started at 65 bbls. an hour from sandy lime at 2,036-76 feet.

Ray and others completed two good wells on the Hausler farm, Lot 16, McCoy survey, Archer County. No. 1 Hausler started at 1,400 bbls. from sand at 1,110-30 feet; No. 2 at 1,200 bbls., sand at 1,106-30 feet; the Texhouma's No. 3 Hauster made 40 0bbls., sand at 1,117-35 feet and No. 4 at 1,200 bbls., sand at 1,103-25 feet.

Wilbarger County is again very active, there being a large number of wells in the South Vernon Field partially completed, though not yet listed among the completions. Late in the week the No. 1 Williams and others of the Winnipeg Oil Co. was said to be making considerable oil. It was estimated to have made 150 bbls. the first hour after having been turned into the tanks. This is an old producer, having made around 450 bbls. from the sand at 2,013 feet. The big production came when it was drilled 8 feet deeper.

Another near completion in this field is the No. 1 Stephens, also of the Winnipeg Oil Co. which is estimated to be making around 1,000 bbls. This company's No. 2 Bond is reported nearing completion also, as it is drilling cautiously and feeling for the sand around 1,975 feet.

Bridwell and others' No. 2 Stephens, which is completed as a gasser making 10,000,000 feet of gas is considered an important event in the development of the field in Wilbarger County.

Baylor County

Considerable interest is manifest in a recent operation in Baylor County, west of the Archer County district. It is the No. 1 Fancher of Moore and others which is reported to have encountered a sand making around 5,000,000 feet of gas daily at around 990 feet. This location is in the southeastern section of Baylor County.

The Marland Oil Co. of Texas which recently contracted for the laying of a pipe line to the Big Lake Field in Reagan County is reported to have broken ground for its tank farm at a point 3 miles west of the town of Big Lake and on the Orient Railroad. Ten steel storage tanks of 80,000 bbls. capacity each are to be built.

In Carson County in the Texas panhandle the No. 1 Mary C. Burnett of The Texas Co. is now listed as a completion making 55,000,000 feet of gas at a depth of 2,965 feet. In the same county the No. 2 Burnett of the American Refining Co. is a completion making 250 bbls. from the pay at 2,888 feet.

Extend Into Young County

Southern Archer and northern Young County are showing probably as much activity as the South Vernon district in Wilbarger County. Indications are that wildcat and semiwildcat operations will extend well over into the northern sections of Young County, so prolific are the new wells being brought in around Olney. Already several locations have been made on the Young County side of the Olney Pool.

Stidham and others are completing their No. 10 White in the South Archer County area which, according to the latest field reports, was swabbing around 400 bbls. from the sand at 1,560 to 1,570 feet.

The Texhoma Oil & Refining Co.'s No. 1 Carey in the South Archer area has been drilled deeper to a depth of 1,145 feet and has increased its production to about 600 bbls., it is reported. This is an old producer which has been producing 100 bbls. from the sand at 1,125 feet.

Robertson and others are completing their No. 6 White, also in South Archer. Scouts reported the well late in the week to be swabbing around 500 bbls. from sand encountered at 1,600 feet.

Reagan County

The Reagan County Pool has afforded nothing of importance during the past week in the way of field development. The No. 1 Group 2 University of the Texon Oil & Land Co. is working away at a depth below 3,500 feet, far beneath the level of the producing horizon. This is the well that for some time has been regarded as the mystery well of the Reagan County Field.

As yet the Big Indian Oil Co. has not been able to make a producer out of its No. 1 Davis, a rank wildcat, 12 miles northeast of Gainesville in Cooke County, but there is rather general disposition among oil men to regard this showing obtained at around 3,527 feet as of some significance.

The Waggoner Refining Co. of Electra is bringing to completion its 4-inch pipe line from the refinery to the South Vernon Field in Wilbarger County. It is reported ready to test after which initial runs of Wilbarger crude wil be made, two two wells having already been connected with the line.

Wichita County Completions

Miller and others' No. 1 Evans, 30 bbls. at 1,710 feet; Magnolia Petroleum Co.'s No. 106 Reilly, 30 bbls. at 1,390 feet; same company's No. 107 Reilly, dry at 1,980 feet; White and others' No. 2 O'Donohoe, dry at 1,359 feet; Camp Oil & Gas Co.'s No. 12-E Douglas, 40 bbls. at 1,940 feet; Gordon Oil Co.'s No. 1 Burnett, dry at 676 feet; Texhoma Oil & Refining Co.'s No. 4-A Burnett, 55 bbls. at 1,815 feet; same company's No. 6 Burnett, 140 bbls. at 1,824 feet; Tolbert and others' No. 15 Coleman, 10 bbls. at 595 feet; same company's No. 16 Coleman, 10 bbls. at 585 feet; same company's No. 17 Coleman, 15 bbls. at 595 feet.

Archer County Completions

Staley and others' No. 1 K. & K., dry at 1,900 feet; Carter and others' No. 2-C White, 25 bbls. at 1,610 feet; same company's No. 9-E White, 170 bbls. at 1,613 feet; Dee Brothers' No. 1-B White, 25 bbls. at 1,605 feet; Jetter and others' No. 1 White, 255 bbls. at 1,579 feet; Robertson and others' No. 9 White, 135 bbls. at 1,606 feet; Woodburn Oil Corp.'s No. 13-A White, 55 bbls. at 1,625 feet; Saunders and others' No. 2 Logan, 60 bbls. at 1,245 feet; Clark and others' No. 2 Echols, 100 bbls. at 1,330 feet; same company's No. 3 Echols, 85 bbls. at 1,335 feet; Consolidated Oil Co.'s No. 3-A Davis, 300 bbls. at 1,085 feet; same company's No. 1-B Davis, 375 bbls. at 1,085 feet; same company's No. 5-B Ragle, 50 bbls. at 1,095 feet; same company's No. 5-D Ragle, 400 bbls. at 1,057 feet; same company's No. 1-E Ragle, 350 bbls. at 1,075 feet; Featherstone and others' No. 1 Vernon, dry at 1,505 feet; Grisham and others' No. 2 Davis, 450 bbls. at 1,060 feet; Jones and others' No. 1 Bearden, dry at 1,118 feet; Lowery and others' No. 4 Harbison, 225 bbls. at 1,330 feet; Major Petroleum Co.'s No. 4 Cowan, dry at 1,500 feet; Melat and others' No. 2 Goldsmith, 100 bbls. at 1,350 feet; same company's No. 3 Goldsmith, 90 bbls. at 1,350 feet; Murchison and others' No. 1 Griffin, 255 bbls. at 1,320 feet; Producers Petroleum Co.'s No. 1 Rogers, 220 bbls. at 1,265 feet; Ramming and others' No. 1 Andrews, dry at 1,025 feet; Sun Oil Co.'s No. 2 Green, 450 bbls. at 1,065 feet; Swastika Oil Co.'s No. 3 Richardson, 110 bbls. at 1,360 feet; Texhoma Oil & Refining Co.'s No. 2 Hausler, 960 bbls. at 1,130 feet; Underwood Drilling Co.'s No. 1 Rogers, 350 bbls. at 1,290 feet; World Publishing Co.'s No. 1 Herron, dry at 1,510 feet; Krog and others' No. 1 Hausler, dry at 1,204 feet.

Young County Completions

Cheney and others' No. 5 Denver, 5 bbls. at 1,940 feet; Knight & Hines' No. 1 Hamilton, dry at 1,157 feet; same company's No. 1 Neely, dry at 1,506 feet.

Eastland County Completions

Hart and others' No. 1 Davenport, 75 bbls. at 1,870 feet; Magnolia Petroleum Co.'s No. 17 Westmoreland, 25 bbls. at 2,875 feet; Grisham and others' No. 1 McDonald, dry at 1,590 feet.

Wildcat Completions

Carson County: American Refining Co.'s No. 2 Burnett, 250 bbls. at 2,888 feet; The Texas Co.'s No. 1 Mary C. Burnett, 55,000,000 feet of gas at 2,965 feet.

Montague County: Texhoma Oil & Refining Co.'s No. 1 Howard, 65 bbls. at 855 feet.

Callahan County: Dillon and others' No. 1 Carter, 25 bbls. at 1,780 feet; same company's No. 6 Cathey, 40 bbls. at 1,790 feet.

Brown County: Avery and others' No. 3 Cox, 15 bbls. at 2,485 feet; Mendenhall and others' No. 2 Newton, 10 bbls. at 1,250 feet.

Concho County: Signal Oil Co.'s No. 1 Waring, dry at 3,200 feet.

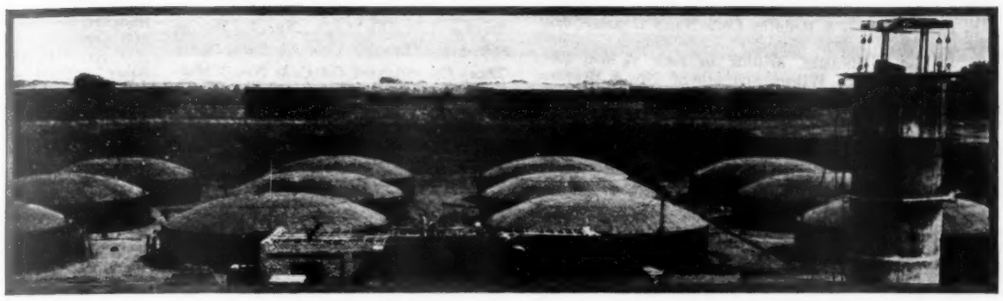
Wilbarger County: Bridwell and others' No. 2 Stephens, 10,000,000 feet of gas at 1,255 feet.

Wichita County Drilling

Clopton and others' No. 1 Rathgaber, drilling in brown shale at 1,240 feet; Donovan and others' No. 1 Borgfeldt, drilling in blue shale at 1,335 feet; Hunter and others' No. 4 Bailey, drilling in rock at 400 feet; Magnolia Petroleum Co.'s No. 108 Reilly, cleaning out at 1,265 feet; same company's No. 41 Beach, drilling in rock at 850 feet; Stump Oil Co.'s No. 1 Chilson, drilling in shale at 1,550 feet; Barr and others' No. 1 Fisher, drilling at 1,780 feet; Cook and others' No. 1 Throckmorton, underreaming at 700 feet; Elliott and others' No. 2 Jennings, showing oil at 1,848 feet; Granite Oil Co.'s No. 7 Fisher, drilling at 200 feet; Hammon and others' No. 1 McCarty, drilling in shale at 1,780 feet; Hammond and others' No. 1 Waggoner, drilling at 1,756 feet; Hampton and others' No. 1 Fisher, drilling in rock at 800 feet; Herbert and others' No. 1 Ferguson, spudding at 100 feet; Kruger and others' No. 1 Kemp & Allen, drilling in shale at 1,250 feet; Leath and others' No. 1 Kemp, drilling at 700 feet; Magnolia Petroleum Co.'s No. 1 Abernathy, drilling in shale at 1,550 feet; same company's No. 11 Douglas, spudding at 100 feet; same company's No. 65 Honaker, drilling at 400 feet; same company's No. 8 Waggoner Brothers, underreaming at 660 feet; same company's No. 39 Rio Bravo, showing oil at 1,675 feet; same company's No. 40 Rio Bravo, drilling at 550 feet; same company's No. 8-A Waggoner, drilling at 710 feet; same company's No. 4-B Waggoner, drilling at 200 feet; Minn-Tex Oil Co.'s No. 7 Roller, showing oil at 1,258 feet; O'Donohoe and others' No. 3 Allen, boring sand at 1,185 feet; Rubson and others No. 3 McClure, has oil showing at 795 feet; The Texas Co.'s No. 1 K. & K., drilling at 840 feet; same company's No. 256 Waggoner, drilling at 1,400 feet; same company's No. 5-A Burnett, drilling in rock at 450 feet; same company's No. 1-B Burnett, drilling at 1,100 feet; same company's No. 11-B Burnett, showing oil at 1,590 feet; same company's No. 3-C Burnett, drilling at 1,165 feet.

Archer County Drilling

A. B. C. Oil Co.'s No. 3 Ferguson, drilling in blue shale at 1,600 feet; Lone and others' No. 1 K. & K., drilling at 1,300 feet; Humble Oil & Refining Co.'s No. 1 Wilson, drilling at 1,000 feet; same company's No. 2 Pease, oil sand at



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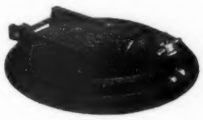

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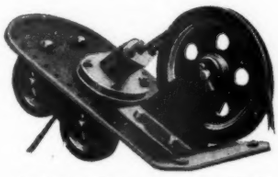

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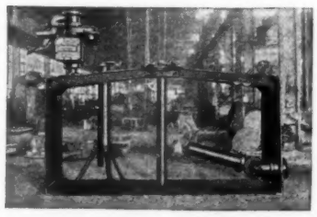

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1,462 feet; Humphreys and others' No. 10 White, has hole full of oil and cleaning out to test at 1,600 feet; Jetter and others' No. 2 White, drilling at 320 feet; Anderson and others' No. 2 Hughes, 100 feet of oil in hole at 595 feet; Lane and others' No. 3 White, drilling in shale at 1,300 feet; Lincoln and others' No. 1 Oil Investment Co., swabbing 270 bbls. in seven hours at 1,110 feet; Atlantic Oil Co.'s No. 5 Parrish, drilling in shale at 1,460 feet; Magnolia Petroleum Co.'s No. 6 Parrish, drilling at 1,480 feet; Barkley and others' No. 5 Wilson, underreaming at 900 feet; McCarty and others' No. 5 Wilson, drilling in shale at 1,575 feet; Riner and others' No. 13-B Wilson, drilling at 1,620 feet; Robertson and others' No. 3 White, drilling in rock at 600 feet; same company's No. 10 White, running underreamer; Simms Oil Co.'s No. 3 Parrish, drilling at 1,100 feet; Texhoma Oil & Refining Co.'s No. 3-C Wilson, drilling at 1,380 feet; Woodburn Oil Corp.'s No. 11-A Wilson, fishing for 10-inch casing at 1,515 feet; same company's No. 12-A Wilson, swabbing oil at 1,508 feet; Archer Oil Co.'s No. 1 Farmer, plugging back to 1,425 feet; Clopton and others' No. 1 Harris, running underreamer. Gwynn and others' No. 1 Farmer, has oil sand at 1,300 feet; Magnolia Petroleum Co.'s No. 1 Robertson, drilling in shale at 1,620 feet; Murchison and others' No. 1 Taber, drilling at 1,400 feet; Simms Oil Co.'s No. 1 Farmer, drilling at 1,200 feet; Tucker and others' No. 1 Farmer, bailing to test at 1,290 feet; Barbee and others' No. 1 Campbell, drilling at 1,365 feet; Bridwell and others' No. 1 Norred, drilling in rock at 540 feet; Carey and others' No. 2 Bridwell, drilling at 670 feet; Carter Oil Co.'s No. 12-E White, drilling at 1,200 feet; Cline and others' No. 1 Cowan, drilling at 920 feet; Carter Oil Co.'s No. 11-E White, drilling in shale at 1,500 feet; Consolidated Oil Co.'s No. 4 Bearden, drilling at 1,030 feet; same company's No. 5 Bearden, drilling at 200 feet; same company's No. 6-B Ragle, drilling at 450 feet; same company's No. 2-E Ragle, drilling at 375 feet; same company's No. 3-E Ragle, drilling at 580 feet; Davis and others' No. 1 Kunkel, running casing at 1,250 feet; Eagle Creek Oil Co.'s No. 1 Cox, bailing salt water at 1,080 feet; Green and others' No. 1 Rogers, setting casing on top of sand at 1,380 feet; Gwynn and others' No. 1 Rogers, drilling at 630 feet; same parties' No. 1 Rogers, drilling at 570 feet; Graham and others' No. 3 Davis, drilling in rock at 470 feet; Goldsmith and others' No. 1 Young, drilling at 520 feet; Hardesty and others' No. 1 Hausler, drilling at 430 feet; Harris and others' No. 1 Stamphil, drilling at 1,060 feet; Harvey and others' No. 1 Kunkel, drilling at 1,280 feet; Hobbs and others' No. 1 Russell, drilling in rock at 640 feet; Jewell and others' No. 1 Connor, drilling at 775 feet; Maer and others' No. 2 Bridwell, drilling at 700 feet; same company's No. 2 Griffin, estimated making 300 bbls. at 1,275 feet; same company's No. 3 Griffin, estimated making 200 bbls. at 1,280 feet; same company's No. 4 Griffin, drilling at 780 feet; same company's No. 5 Griffin, drilling at 525 feet; same company, No. 6 Griffin, drilling at 370 feet; same company's No. 1 Neal, drilling in blue shale at 1,220 feet; Melat and others' No. 4 Goldsmith, drilling in shale at 1,280 feet; same company's No. 5 Goldsmith, drilling at 1,310 feet; Murchison and others' No. 1-B Harmel, drilling at 1,090 feet; same company's No. 1-C Harmel, will pump and test oil sand at 1,280 feet; same company's No. 2-C Harmel, drilling at 540 feet; same company's No. 2 Griffin, drilling at 1,210 feet; same company's No. 3 Griffin, drilling at 930 feet; same company's No. 1 Wood, drilling in shale at 1,100 feet; Mutual Oil Co.'s No. 1 Harmel, drilling at 960 feet; Petroleum Producers Co.'s No. 1 Bridwell, drilling in rock at 460 feet; same company's No. 2 Rogers, estimated making 300 bbls. at 1,280 feet; Featherstone and others' No. 1 Hausler, drilling at 535 feet; same company's No. 2 Hausler, drilling at 315 feet; Ramming and others' No. 1-B Andrews, drilling in rock at 475 feet; Shamrock Oil Co.'s No. 7 Campbell, coring sand at 1,430 feet; same company's No. 13 Richardson, coring sand at 1,315 feet; same company's No. 18 Goldsmith, drilling at 530 feet; Southern Exploration Co.'s No. 1 Kinder, drilling at 320 feet; The Texas Co.'s No. 2 Jeske, drilling at 850 feet; Texhoma Oil & Refining Co.'s No. 3 Hausler, drilling at 850 feet; same company's No. 4 Hausler, drilling in rock at 460 feet; Lee Wilson and others' No. 4 Bearden, estimated pumping 200 bbls. at 1,075 feet; same company's No. 6 Bearden, drilling at 250 feet; Young and others' No. 1 Campbell, fishing for pipe at 800 feet.

Young County Drilling

Applegate and others' No. 1 Zimmerman, drilling in rock at 560 feet; Burton and others' No. 1 Lewis, drilling at 1,150 feet; Burns and others' No. 1 Alexander, cleaning out at 1,205 feet; Cheney and others' No. 1 Harrison, drilling at 1,940 feet; Dunn and others' No. 1 Johnson, drilling at 4,310 feet; Harvey and others' No. 1 Hill, showing oil and water at 1,125 feet; Herbert and others' No. 1 Johnson, drilling at 2,680 feet; Keener Oil & Gas Co.'s No. 1 Marshall, drilling at 650 feet; Litchfield and others' No. 1 Campbell, estimated making 1,000 bbls. at 1,047 feet; McGarr and others' No. 1 Johnson, drilling at 4,015 feet; same company's No. 1 Scarborough, fishing for casing at 2,550 feet; Monroe Production Co.'s No. 1 Cheney, drilling at 2,410 feet; Miller and others' No. 1 Hume, underreaming 6-inch casing at 3,205 feet; Nash and others' No. 1-B Williams, will be abandoned at 3,100 feet; Reed and others' No. 1 Foster, drilling at 300 feet; Simms Oil Co.'s No. 1 Willis, running 6-inch casing and making 35 bbls. at 3,946 feet; Stovall and others' No. 2 Stovall, swabbing 90 bbls. at 3,140 feet; Union Oil Co.'s No. 1 Keathley, drilling at 3,255 feet; Vance and others' No. 1 Davis, drilling at 1,480 feet.

Stephens County Drilling

Hoffer Oil Corp.'s No. 1 Webb, mudding off 6-inch casing; Ivan Petroleum Co.'s No. 2 Martin, cleaning out after shot at 4,010 feet; Underwood Drilling Co.'s No. 3 Lee, drilling at 1,895 feet; same company.'s No. 2 Williams, drilling at 2,025 feet; Pender Production Co.'s No. 3 Keel, drilling at 1,240 feet; Pierce Oil Co.'s No. 1 Cruddington, drilling sand lime at 3,460 feet; Prairie Oil & Gas Co.'s No. 15 Atkins, cementing 5-inch casing at 3,200 feet; same company's No. 2 Caldwell, fishing for casing at 2,500 feet; Republic Production Co.'s No. 2 Knox, drilling at 3,300 feet; Snowden & McSweeney's No. 8 Ackers, cleaning out at 3,040 feet; same company's No. 5 Higginbotham, fishing at 3,175 feet; Swensondale Oil Co.'s No. 1 Echols, cleaning out after shot at 3,280 feet; Texas Consolidated Oil Co.'s No. 6 Martin, drilling at 1,200 feet; Texas Pacific Coal & Oil Co.'s No. 5 Rogers, cleaning out after shot at 4,530 feet; Walker and others' No. 4 First National Bank, drilling by casing at 1,750 feet; same company's No. 5 First National Bank, drilling a gray lime and showing 200 bbls. a day at 3,172 feet; Carter and others' No. 1 Jennings, drilling at 2,250 feet; same company's No. 1 Texas & Pacific, drilling in Caddo lime at 3,475 feet; Christie Brothers' No. 4 Humphreys, drilling at 750 feet; Cobb and others' No. 1 Simmons, drilling by underreamer at 1,006 feet; Crosby Oil & Gas Co.'s No. 1 Satterfield, drilling at 700 feet; Fouts and others' No. 1 McClesskey, setting 6-inch casing at 3,000 feet; Humble Oil & Refining Co.'s No. 1 O'Laughlin, drilling at 3,550 feet; Kleinfelder and others' No. 1 Grimes, drilling at 2,800 feet; Knox-Lewis and others' No. 1 Flournoy, drilling at 2,480 feet; Landreth Production Co.'s No. 1 Ward, fishing for casing at 2,385 feet; Magnolia Petroleum Co.'s No. 2 Brown, drilling at 3,812 feet; same company's No. 7 Brown, drilling at 4,450 feet; same company's No. 8 Brown, drilling at 1,390 feet; same company's No. 5 McCauley, fishing for 5-inch casing at 3,183 feet; same company's No. 1 Taylor, drilling in lime at 3,715 feet; Mook Texas Oil Co.'s No. 2 Head, drilling at 1,300 feet; Pender Production Co.'s No. 1 Hart, drilling at 2,180 feet; Chenault and others' No. 1 Watson, drilling at 450 feet; Scott and others' No. 1 Curry, spudding; Sendorf Brothers' No. 3 Sorgee, showing oil and gas at 1,787 feet; States Oil Corporation's No. 1 Boles, drilling at 2,600 feet; Sun Oil Co.'s No. 6 Stoker, drilling in lime at 3,131 feet; The Texas Co.'s No. 10 Curry, drilling at 2,705 feet; Texas Fidelity Oil Co.'s No. 1 McClure, cleaning out after a shot at 3,630 feet; Texas Pacific Coal & Oil Co.'s No. 1 Veal, straightreaming at 3,330 feet; same company's No. 2-B Winslow, drilling at 1,435 feet; Triplehorn Production Co.'s No. 1 Adams, drilling in lime at 3,730 feet.

Adams and others' No. 2 Dawes, drilling at 540 feet; same company's No. 1 Pettit, spudding; Beard and others' No. 1 Armstrong, drilling at 620 feet; Dixie Oil Co.'s No. 1 Brashear, drilling at 2,620 feet; Kirk & Brewer's No. 3 Shugart, drilling at 1,280 feet; Lobaugh and others' No. 2 Holcomb, drilling at 820 feet; Parsons and others' No. 1 Scott, drilling at 700 feet; States Oil Corp.'s No. 8 Quiett, drilling in lime at 2,920 feet; Teatsorth and others' No. 1 Scott, drilling at 150 feet; Eastland Oil Co.'s No. 1 Jordan, drilling at 1,000 feet; Keough Brothers' No. 10 Gooch, underreaming 8-inch casing at 1,700 feet; Ladd and others' No. 1 Owens, resetting 15-inch casing at 575 feet; McBride and others' No. 1 White, drilling at 1,120 feet; McMeans and others' No. 1 Storme, spudding; Reilly and others' No. 1 McClelland, drilling at 1,450 feet; Root and others' No. 1 Ammerman, fishing for casing at 1,100 feet; same company's No. 1 Hart, drilling at 1,900 feet.

Wildcat Operations

Hutchinson County: Branum and others' No. 1 Johnson, making 60,000,000 feet of gas at 2,825 feet; Dixon Creek Oil Co.'s No. 1 Smith, drilling at 1,000 feet; Douglas Oil Co.'s No. 1 Whittenburg, running casing at 1,900 feet; Amarillo Oil Co.'s No. 1-B Bivens, showing gas at 2,415 feet; Prairie Oil & Gas Co.'s No. 1 Shaw, drilling at 1,510 feet; Twin Six Oil Co.'s No. 1 Kingsland drilling at 2,450 feet; Tex-O-Kil Co.'s No. 1 Johnson, making 7,000,000 feet of gas at 1,165 feet; Western Enterprise Oil & Gas Co.'s No. 1 Smith, showing oil at 2,860 feet; Wilson and others' No. 1 Whittenburg, showing oil and gas at 2,905 feet.

Moore County: Amarillo Oil Co.'s No. 1-A Masterson, drilling at 260 feet.

Potter County: Amarillo Oil Co.'s No. 1 Warick, drilling at 1,750 feet; same company's No. 1 Bush, drilling in lime at 2,750 feet.

Carson County: American Refining Co.'s No. 3 Burnett, standardizing at 1,830 feet; Crosby Oil Co.'s No. 1 Burnett, drilling at 1,935 feet; Gates Oil Co.'s No. 1 Burnett, showing gas at 2,870 feet; Marland Oil Co.'s No. 1 Burnett, drilling at 2,060 feet; Olson Brothers' No. 1 Burnett, fishing for casing at 2,500 feet; Silk and others' No. 3-A Burnett, drilling at 1,500 feet; Skelly Oil Co.'s No. 2 Burnett, drilling at 1,825 feet; The Texas Co.'s No. 4 Burnett, showing salt water at 3,008 feet.

Gray County: Anderson and others' No. 1 Bradford, drilling at 420 feet; Clark and others' No. 1 Combs and Worley, drilling at 1,200 feet; Dillard and others' No. 1 Hanley, drilling in lime at 2,640 feet; Holmes and others' No. 1-A Morse, drilling at 1,970 feet; Wilcox Oil & Gas Co.'s No. 1 Worley, showing oil at 2,925 feet; same company's No. 1 Wilson, drilling in lime at 3,270 feet.

Wheeler County: Shedden and others' No. 1 Westmoreland, cleaning out at 490 feet; Whittington and others' No. 2 Williams, drilling at 1,260 feet.

Wilbarger County: Bridwell and others' No. 3 Stephens, drilling in rock at 400 feet; same company's No. 4 Stephens, drilling at 300 feet; Dill and others' No. 1 Dill, drilling at 2,175 feet; Hamilton and others' No. 1 Kester, drilling in rock at 400 feet; Hart and others' No. 1 Smith, underreaming at 2,020 feet; Kolp and others' No. 1 Waggoner, drilling at 900 feet; McCamey and others' No. 1 Richardson, drilling at 1,730 feet; Noble Oil Co.'s No. 1 Waggoner, showing oil at 1,940 feet; Oklahoma Texas Refining Co.'s No. 1 Bowers, drilling at 1,000 feet; Petroleum Producers Co.'s No. 2 Dill, drilling at 700 feet; Price Brothers' No. 1 Zipperle, drilling at 1,452 feet; Ray and others' No. 1 Bond is drilling at 1,740 feet; South Vernon Oil Co.'s No. 1 Stephens making oil at 2,030 feet; same company's No. 4 Stephens is drilling at 700 feet; same company's No. 5 Stephens is drilling at 800 feet; Staley and others' No. 1 Waggoner, drilling at 100 feet; Tippit and others' No. 1 Sheldon, drilling at 1,500 feet; Waggoner and others' No. 1 Bond, drilling at 900 feet; Winnipeg Oil Co.'s No.

(Continued on Page 104)

RECEIPTS OF CALIFORNIA OILS AND IMPORTS LESS IN OCTOBER

According to figures collected by the American Petroleum Institute, imports of crude and refined oils at the principal ports for the month of October totaled 5,787,000 bbls., a daily average of 186 677 bbls., compared with 5,798,000 bbls., a daily average of 193,267 bbls. for the month of September.

Imports at the principal United States ports for the week ended November 8 totaled 2,016,000 bbls., a daily average of 288,000 bbls., compared with 1,590,000 bbls., a daily average of 227,142 bbls. for the week ended November 1.

At Atlantic Coast Ports—	Total October	Total September	Week End. Nov. 8	Week End. Nov. 1
Baltimore	606,000	437,000	200,000	*65,000
Boston	299,000	193,000	175,000	132,000
New York	1,140,000	828,000	591,000	74,000
Philadelphia	402,000	330,000	229,000	200,000
Others	501,000	878,000	286,000	79,000
Total	2,948,000	2,666,000	1,481,000	550,000
Daily average	95,097	88,867	211,571	78,571
At Gulf Coast Ports—				
Galveston district	1,027,000	1,090,000	206,000	483,000
New Orleans and Baton Rouge	1,190,000	1,350,000	269,000	245,000
Port Arthur and Sabine district	492,000	606,000	60,000	252,000
Tampa	130,000	87,000	.....	*60,000
Total	2,839,000	3,132,000	535,000	1,040,000
Daily average	91,580	104,400	76,429	148,571
At All U. S. Ports—				
Total	5,787,000	5,798,000	2,016,000	1,590,000
Daily average	186,677	193,267	288,000	227,142

*Revised.

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the month of October totaled 3,472,000 bbls., a daily average of 112,000 bbls., compared with 3,583,000 bbls., a daily average of 119,433 bbls. for the month of September.

Receipts at Atlantic and Gulf Coast ports for the week ended November 8 totaled 640 000 bbls., a daily average of 91.429 bbls., against 677,000 bbls., a daily average of 96,714 bbls. for the week ended November 1.

At Atlantic Coast Ports—	Total October	Total September	Week End. Nov. 8	Week End. Nov. 1
Baltimore	278,000	290,000	.....	.....
Boston	217,000	148,000	223,000	.....
New York	2,338,000	*2,737,000	337,000	513,000
Philadelphia	379,000	327,000	.....	164,000
Others	160,000	81,000	80,000	.....
Total	3,472,000	3,583,000	640,000	677,000
Daily average	112,000	119,433	91,429	96,714
Total Atlantic and Gulf Coast ports	3,472,000	3,583,000	640,000	677,000
Daily average	112,000	119,433	91,429	96,714

*Revised.

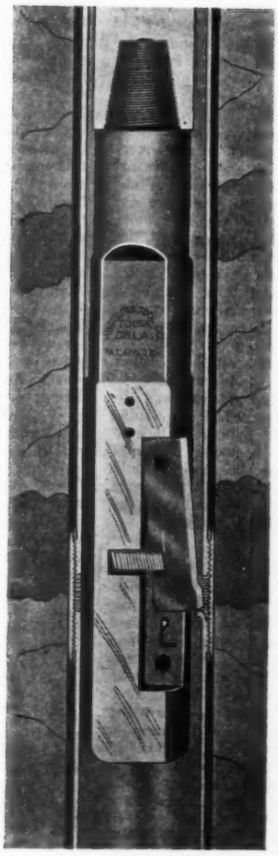
when the casing freezes

HINDERLITER Jar Up and Jar Down Casing Ripper offers an Easier, Quicker and More Economical Method of Ripping Casing at any Depth.

The HINDERLITER Jar Up and Jar Down Casing Ripper is designed to rip the threaded casing in casing collar or coupling at any depth desired.

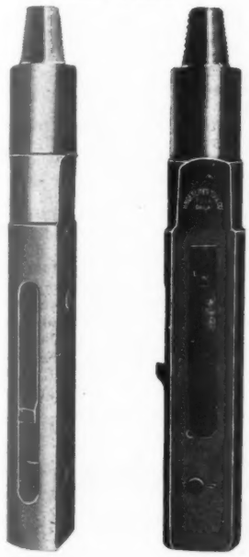
As the name implies, the Ripper can be used to rip either upward or downward, the knife being set for jarring in either direction, as desired.

If necessary to disconnect one or more joints from the bottom of a string of casing in the hole, the Ripper is used in the jar-down position. A latch holds the knife in closed position while Ripper is being lowered to the desired depth. The tools are then pulled upward, tripping the latch and causing knife to open into ripping position. A few strokes downward, with a strain on the casing, will rip the threads of the lower casing screwed in the collar, causing the casing to part. The tools and upper casing are then pulled. This method saves ripping the entire joint of casing.



Ripper in Operation, Collar is Left Almost Undamaged, when ripping either upward or downward.

SIDE VIEW



Knife in Position to Rip Down

Knife in Position to Rip Up

For Removing 1 or 2 Joints From Top of String

When it is necessary to remove one or two joints from the top of a string of casing, knife is set in position to rip upward, in which position it runs in without latching. Several upward strokes will rip the threaded casing, which will then pull out of the collar and may be lifted to the surface on the edge of the knife. The jar-up ripper does not damage completely the collar remaining in the hole. A steel nipple can be used with safety.

This Ripper is a highly efficient tool and will be found to furnish the easiest and quickest method yet offered for its purpose. At the left are shown two views, with knife set to rip either upward or downward. Ask for literature and quotations.

"The Biggest Little Tool Company in the Oil Country"

HINDERLITER TOOL COMPANY
TULSA, OKLA.

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HINDERLITER

Fields of the Central West

By Whit

A. W. B. Jacks gets 40-bbl. well near Wapakonetta, Auglaize County, extending production westward. W. W. Rocks has 25-bbl. pumper in Allen County. Lantz, Gregg & Schulty get 30-bbl. well in Wood County. A. B. Bement has 20-bbl. producer in Princeton Field, Indiana.

FINDLAY, Ohio, Nov. 17.—Not one of the divisions of the Central West Field showed anything out of the ordinary, and very few completions were reported. This does not mean any slump in new work. If reports from the fields are any criterion the winter should see an increase in work. The gas companies in Central Ohio are doing the bulk of the work there, but in other fields, the oil operators are doing it. The Central Ohio Field, supposed to be almost an exclusive gas field, is turning out some excellent wells, not alone in the shallow Berea sand, but the deep Clinton and the Trenton Rock. In the latter few wells have been drilled to the great depth and it is a standoff as part have shown commercial production and others have been dusters. The supposition is that when oil production is found in the Trenton around and below 4,000 feet, the pay sands will not be found covering as wide area as was the case in the old Lima Field at depths varying from 1,100 to 1,600 feet, but instead will be found in pools. When a well does get a commercial production in those deep pools it maintains its average far above expectations, especially in the Newark area of Licking County.

Payne Field

The old Lima Field is in for a heavy drilling campaign as soon as the market improves, for there have been a few spots found in advance of the old field that will be more thoroughly tested out and advance wells to the new producing sections will be sought. Paulding County at this time takes the lead in the new spots and is in for quite an interesting development. The new field in Paulding County, known as the Payne Field, has attracted some well known operating companies that will give that section of the State a real testing. Among them are the Rocky River Oil Co., Norwood Oil Co., John A. Nieding, William J. Benschneider, Slagle Brothers, all of Cleveland, Ohio, the U. S. A. Oil Co., Columbus, Ohio; the W. C. H. Oil Co., Washington Court House, Ohio; Linden Oil Co., Warren, Ind.; Flat Rock Oil Co., Mansfield, Ohio; McIntosh Oil Co., Payne, Ohio; Richland Oil & Gas Co., Mansfield, Ohio; Ashland Oil & Gas Co., Ashland, Ohio; Blackburn Brothers, Steubenville, Ohio; Aetna Drilling Co., Payne, Ohio; Horton & Hively, Charleston, W. Va.; Murphy Oil Co., Philadelphia, Pa.; W. E. Hawk Syndicate, Wooster, Ohio; and Boston & Southwestern Oil & Gas Co., Paintsville, Ky. The Ohio Oil Co., Findlay, Ohio, is also reported holder of large acreage in Paulding and adjoining counties, and advice from the field is that every lease owner contemplating commencing development work as soon as improved market conditions are in sight. Some wells are producing oil of heavier gravity, while some later developments, according to reports, have found a grade that compares with that found near Melrose, in the eastern part of the county. The finding of natural gas in commercial quantities is one of the main features of the field and it will not be long until towns and farm homes in the vicinity of Payne will begin enjoying the greatest fuel known to civilization.

Early Development

The writer spent quite a long period in 1884 at the town of Worstville, the next town east of Payne about 5 miles, on the Nickel Plate Railroad, and became quite familiar with that part of the County of Paulding, which was before the Lima Field was known. Along in the early 90s, the writer, with Charles Palmer, president of the then Palmer Oil Co., at that time one of the large operating concerns in Trenton Rock Field and this company's superintendent, Bill Jones, scouted a well drilled in Section 13, Harrison Township. This well was closely tested out and would have made at least a flush production close to 50 bbls., but never was taken care of like others that were drilled in that part of the county. Along what was called the Antwerp reservoir, a well was drilled that showed a flush of 45 bbls. It was put on the pump for a few days and made 15 bbls. The price of Lima crude was so low and no market for the oil, the well was naturally forgotten as gushers were being drilled in Wood, Hancock, Sandusky, Allen, Auglaize and Mercer Counties, as well as across the State line in Indiana. Good showings were found in early Paulding County tests in all directions from Payne, with the exception of to the east until the eastern part of the county is reached in the vicinity of Melrose. What showed for another good well in the early days was drilled just north of South Creek, in Section 10, Harrison Township, 3 miles south of Antwerp and 5 miles almost due north of Payne. Midway between this well and Payne, another that made a fair showing was drilled in Section 22, same township. About 7 miles northeast of Payne, just on the outskirts of Paulding Center, as the town was then known, very fine gas showings were encountered and it is believed by the operators if this same area was given a test a fair supply could be found. With the good showings made in the early days along the Ohio-Indiana State line and along the line of Paulding and Van Wert Counties, in Ohio, there is hardly a reason why quite a producing field should not be opened up.

Shelby County is another interesting spot, bot in Van Buren and Cynthian Townships, where oil has been found in commercial quantities. Then comes Darke County which has had quite a heavy development during the past couple of years, and Hardin County, where some good oil and gas wells have been found during the past year. With all these new addition to the old Trenton Rock Field along with the still many spots for further operations within the old defined limits, the crude spring should show a remarkable change in the oil map of the Lima Field. The finding of production west of Wapakonetta, in Auglaize County, in an area considered worthless in the rush days, also adds a large new area to be developed.

Lima Field

Fourteen completions were reported for the week from the old Lima Field, none out of the ordinary producer list. In Marion Township, Hardin County, Schmidt and others drilled a test on the northwest corner of the Sarah Keller farm, in the northeast quarter of Section 11, and got a 10-bbl. producer. Top of Trenton was found at 1,393 feet and drilled 30 feet in to a total depth of 1,423 feet.

In Benton Township, Paulding County, in the Payne Field, E. Stevenson's No. 3 on the Smith farm, is reported at 10 bbls. while he has a nice gas well on the Papenbrook farm as well. In the town of Payne, on a 2-acre lot, the Aetna Drilling Co. is putting down a test.

Another extension has been made to the Elmore Field, in Ottawa County. This new well was drilled by the River Oil Co. in a test on the southeast corner of the H. Y. Bushman farm, in the southeast quarter of Section 14, Harris Township, almost due west of Elmore, and on the north side of the Portage River. It showed a production of 20 bbls. from a total depth of 1,305 feet. This test is over 1 mile west of the well drilled by O. Lew Luckey, just a stone's throw east of the bridge across the Portage River from Elmore. The Luckey well is the closest oil well to Elmore, the big gusher of several months ago being found over 1 mile east and south of Elmore. The Luckey wells and the new well on the Bushman farm, make an interesting extension to the field, which may bring about an active drilling campaign. When visited on Sunday both wells were connected, but not pumping as there is no water to speak of. The Bushman farm well was reported to be located in Section 14, Clay Township, but unless a change has been made of recent years, the north line of Sections 13 and 14 is the dividing line between Harris and Clay Townships. This well will naturally bring development work toward Genoa, about 5 miles northwest of Elmore where some wells were found years ago.

In Gibson Township, Mercer County, the Pennsylvania Oil Co. drilled its second test located 600 feet from the north line and 1,250 feet from the west line of the H. L. Echner farm, in the northwest quarter of Section 18, which pumped 10 bbls. Top of Trenton was found at 1,148 feet and drilled 42 feet in to a total depth of 1,190 feet.

About 5 miles west of Wapakonetta, A. W. B. Jacks drilled a test on the southeast corner of the A. E. Long farm, in the northeast quarter of Section 33, Moulton Township, Auglaize County, a little over 2 miles southeast of Glynwood, and about 1 mile west of the 100-bbl. well drilled last month by E. E. White on the Julian farm, in Section 34. The Long farm well is reported to have produced 40 bbls. and is a nice extension to the west of the new Julian district and quite a distance to the south of the old Glynwood end of the field. In the southwest quarter of Section 34, same township, the Neely-Clover Co., drilled in a 15-bbl. well at a test in the northeast corner of the Joseph Rapp farm. This area is in for a drilling campaign.

In Spencer Township, Allen County, W. W. Rock's No. 2, located 600 feet from the north line and 250 feet from the west line of the Anna Youngpeter farm, Section 23, pumped 25 bbls. In Bath Township, same county, C. A. Peary and others' No. 11 located 900 feet from the north line and 400 feet from the east line of the Elias Lewis farm, Section 10, pumped 20 bbls. natural. Top of Trenton was found at 1,306 feet and drilled 34 feet in.

In Portage Township, Hancock County, the Urchalitz Oil Co.'s test on the northeast corner of the B. Twing farm, in the northeast quarter of Section 32, pumped 7 bbls.

In Lake Township, Wood County, Lants, Gregg & Schulty's No. 6 located 200 feet from the north line and 500 feet from the south line of the Henry Schulty farm, Section 35, pumped 30 bbls. from a total depth of 1,308 feet.

In Middleton Township, Wood County, near Haskins, Fred H. Speck's No. 4 on his own farm, Section 17, located 730 feet from the south line and 660 from the west line, pumped 10 bbls. Top of sand was found at 1,222 feet and drilled 40 feet in.

In Bloom Township, Wood County, the Brennan Oil Co.'s No. 24, located 300 feet from the south line and 600 feet from the east line of M. L. Donahay farm, Section 30, pumped 15 bbls. at a total depth of 1,350 feet.

In Freedom Township, Wood County, southwest of Pemberville, J. Edward Matzinger's No. 6, located 660 feet from the south and east lines of the Bryant Brockover farm, Section 26, pumped 15 bbls. Top of Trenton was found at 1,201 feet and drilled 51 feet in to a total of 1,252 feet.

Indiana Field

Only one completion was reported from the Indiana Field for the week and that was in the Princeton Field, A. B. Bement's test on the northwest corner of the Eldon Catt farm, in the southeast quarter of Section 13, Clay Township, Pike

(Continued on Page 102)

News of Mexican Fields

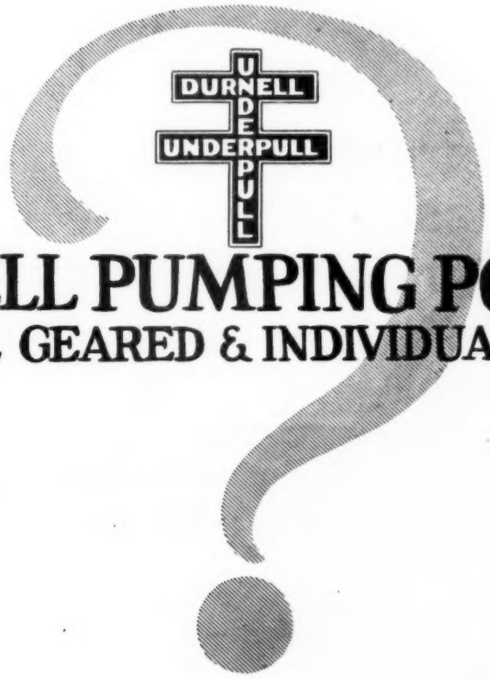
By George Blardone

TAMPICO, Mexico, Nov. 15—Thirteen tests were completed in Mexican fields the past week, seven failure and six producers resulting. In the Panuco district five pay completions have an initial production of 3,300 bbls., while one 500-bbl. stripper is credited to the South Fields. Transcontinental Petroleum Co. had three pay completions in Lots 4 and 5 of its holdings in the Cacalilao sector in the northern fields. Its No. 126, Lot 5, is rated good for 1,500 bbls. at 1,825 feet; No. 102, Lot 4, 200 bbls. at 1,970 feet, while No. 112, same lot, at 2,090 feet is called 1,000 bbls. La Corona Petroleum Co.'s No. 1, Lot 139 Cacalilao, is a 500-bbl. well at 1,745 feet, but No. 142, Lot 4, is a duster at 2,055 feet. East Coast Oil Co.'s No. 21 Laguna de la Milpa is rated 100 bbls. at 1,940 feet. International Petroleum Co. and Mexican Sinclair Petroleum Corp. has one dry hole each in Lots 5 and 8 Cacalilao, respectively.

In the South Fields, Mexican Eagle Oil Co.'s No. 40, Lot 132 Amatlan, is finished at a sub-sea level of 1,601 feet, rated a 500-bbl. stripper. La Corona Petroleum Co. has finally abandoned its deep test, No. 1, Lot 30 Comales, which has been a junked hole for a long time at 5,200 feet. This hole, deep as it is, about explodes the Comales sector, which lies well west of Tepetate. Showings there at shallower depths finally encouraged the Corona people to drill a deep hole in an attempt to develop the Tamasopa lime, but this was not successful. Another comparatively deep test which drilled into salt water at 3,206 feet is International Petroleum Co.'s No. 1 Santa Rosalia, south of the Tuxpam River, and east of Penn Mex Fuel Co.'s Jardin sector. International's No. 48 Toteco is also a salt water well at 1,920 feet.

Huasteca Petroleum Co.'s No. 8 Tres Hermanos, in the company's extensive hacienda of La Pitahaya, northwest of Tepetate and south of the Cuchuaras River, which has been a subject of rumors that have extended to the United States, does not measure up to its rumored vol-

(Continued on Page 130)



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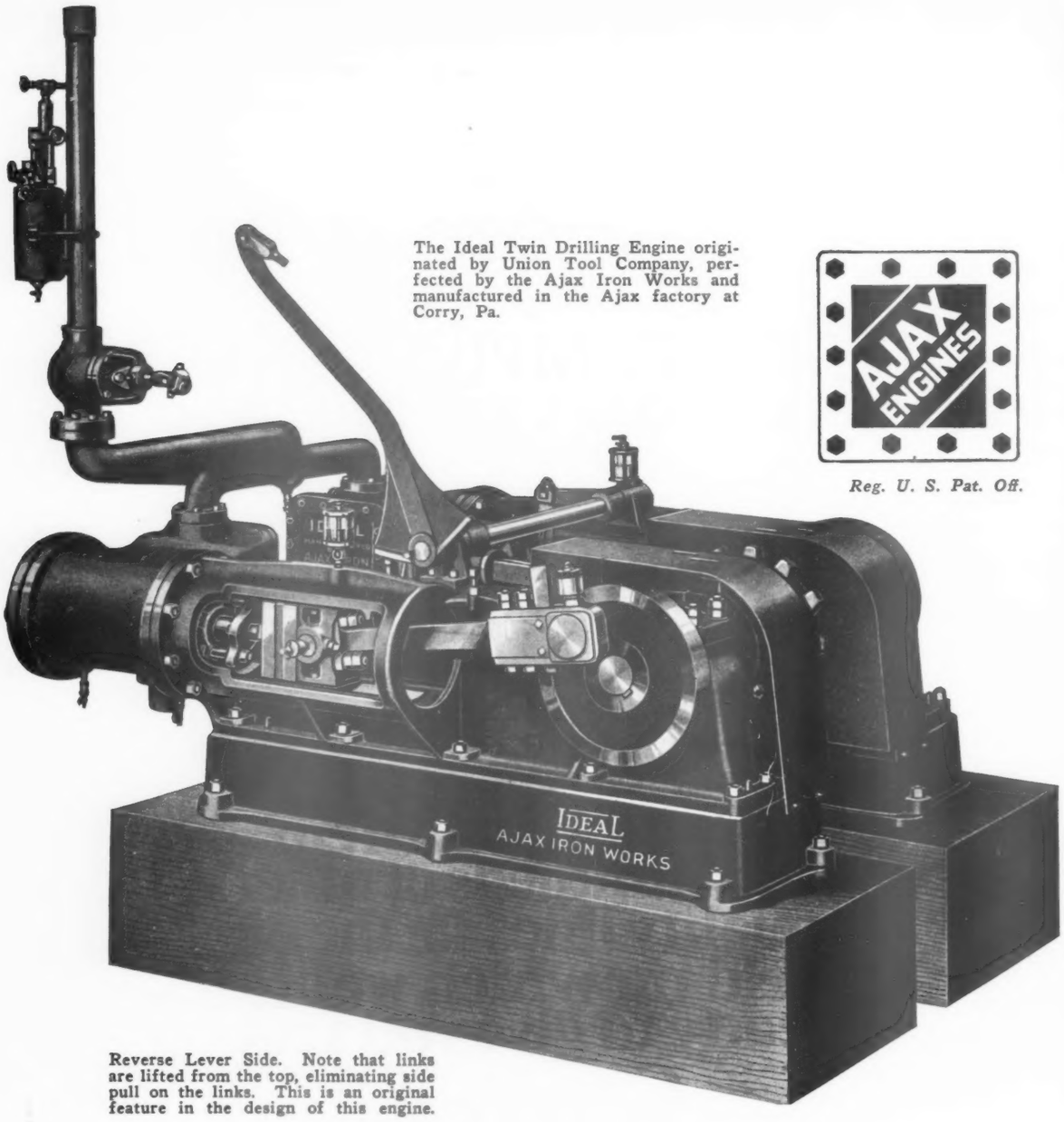

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Genuine Replacement Parts Maintain Original Engine Value

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The Ideal Twin Drilling Engine, designed for faster rotary drilling, leads the oil world the same as the single Ajax Engine has led for so many years.

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DRILLING ENGINES

Ajax Replacement Parts

Crude Production in the Burbank Field

Organization and Methods of Operation in Famous Oklahoma Area. Romance of Pawhuska Sales Has Obscured the Real Achievements

By Clyde Alexander
Delivered Before Bartlesville Engineers Club

It is, indeed, a remarkable fact that, in the minds of the majority of people, more particularly those not directly engaged in the oil business, the name of Burbank is not connected with an oil field at all but with a gigantic auction sale where the master minds of Oildom battle with each other and with a tall, bronzed auctioneer who acts as master of ceremonies. The picturesque setting for these sales, coupled with the touch of human interest which is always connected with the native Indian, and the moments of tense uncertainty leading up to a spectacular climax when a particularly valuable tract is finally knocked down to the successful bidder for a figure almost beyond the comprehension of the average man, have all been played upon so effectively in the various newspapers and magazines that the real nature of the Burbank Field is completely overshadowed. Such of the writers as have had anything to say about the oil field itself have, perhaps, commented on its immense size or the remarkable sight of long rows of derricks so methodically placed as to stretch out in orderly sequence in every direction as far as the eye can see, but more space has been devoted to the romantic side of the story than to the practical business side.

For be it understood, that the very executives who so coolly bid up into the millions for these bare tracts of ground, were guided, not by any motives of romance or charity, but by the hard-headed business motive of getting their money back with a reasonable profit in addition. In the minds of the executives, these long rows of derricks represented, not a pretty picture but an immense outlay of cash which could only be regained by the actual recovery of millions of barrels of "liquid gold" and, therefore, they are only a means toward the ultimate end sought.

When the bare leases were turned over to the production departments of the various companies after their purchase, intense activity was immediately in evidence. In the earlier days of the field when the prices paid for leases were mere pittances compared with the bonuses paid later, the operators were content to develop their tracts slowly, feeling their way out into the unproven territory and playing safe at all times. However, it was soon conclusively proven that in order to take advantage of the large flush production which is necessary if the immense bonus cost is to be returned, all of the wells on the leases must be started and completed at the very earliest possible date and in order to do this, the production organization of each of the companies operating in the field were keyed up to the highest stage of speed and efficiency. From an average drilling time of 75 to 90 days, the time was gradually reduced until the average is now probably not over 45 or 50 days. The record drilling time is perhaps held by the Empire subsidiary, The Midland Oil Co., which completed a well in 36 days, including rigging up.

Well Drilling

The general procedure followed in the development of tracts in the Burbank Field is as follows:

On each 160-acre tract there are 16 wells drilled, one to each 10 acres. The line wells are 300 feet from the line and proportionately spaced so as to make four wells to each line and four center locations.

The drilling of the wells is contracted by the foot, and a day rate is paid for such work as pulling of 10-inch, 12½-inch and 15½-inch casing, shooting and cleaning out producing wells and plugging dry holes. The contractor furnishes all tools, machinery and labor necessary to drill the well. The operating company furnishes the rig, complete with steel bull wheels, steel calf wheel and steel crown blocks, casing, casing shoes, casing clamps and control head. The approximate amounts, sizes and specifications of the casing used are as follows:

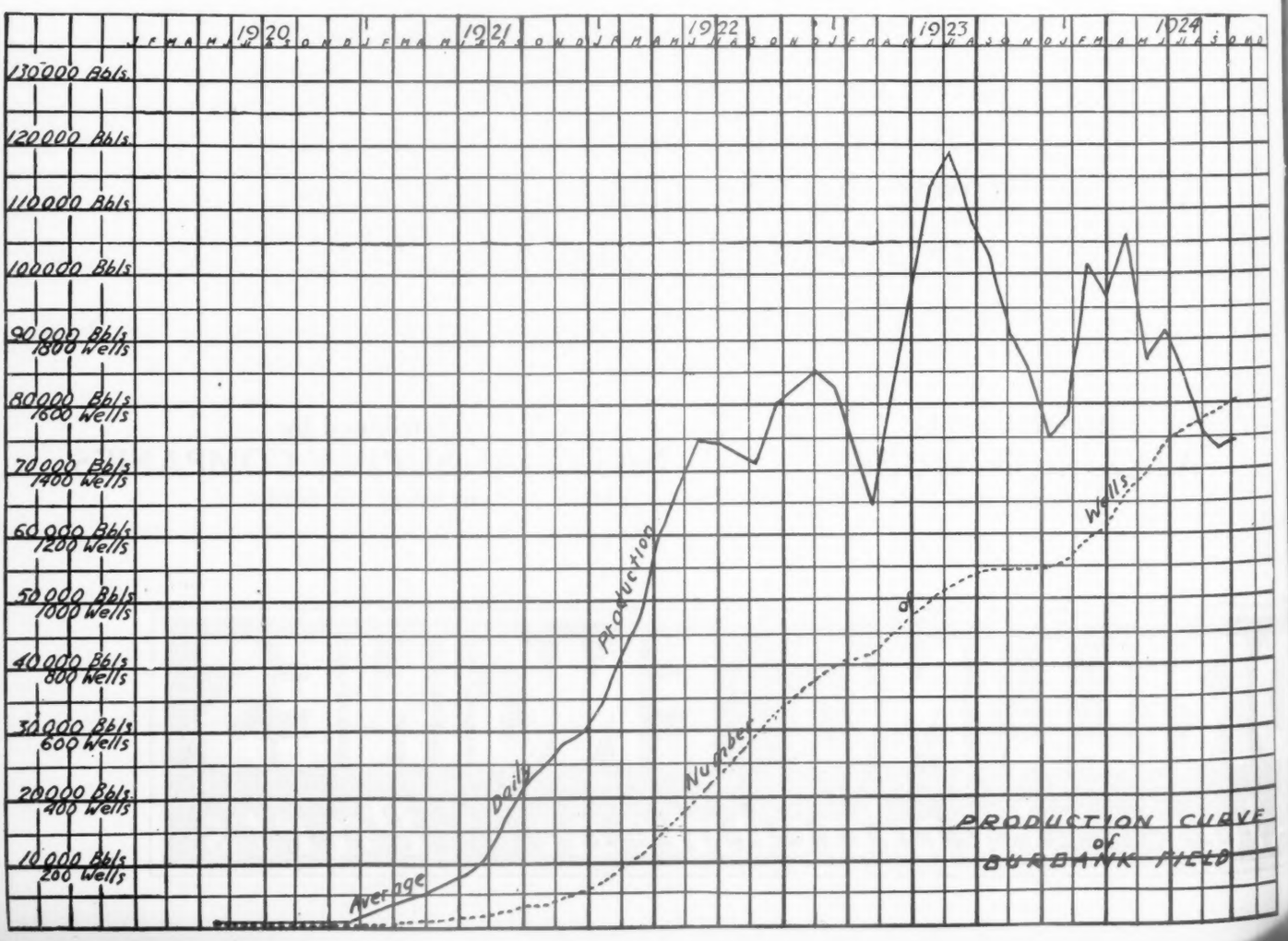
Gravity 37.2° API at	60° F
Water	Trace
Sulphur, percent	0.13
Initial boiling point	80° F
Gasoline and naphtha distillate 28.6 per cent—gravity	59°
Kerosene distillate 16.8 per cent—Gr...	42°
Gas oil distillate 12.4 per cent—Gr...	36°
Light lubricating distillate 10.5 per cent—gravity	31°
Medium lubricating distillate 6.0 per cent—gravity	31°
Medium lubricating distillate 6.0 per cent—gravity	28°
Dist'l loss and still residue, per cent..	35.7

Shooting

There is one man in charge of the shooting of each company's wells. His duty is to see that the well is properly cleaned out and absolutely free from sand pumpings, mud, etc. The proper procedure is to run the measuring line on bottom of hole and then on top of each shell to see that it is in the proper place, thereby determining whether the shells are together or if the hole has caved in and buried those in the hole before the balance can be lowered. The measuring also keeps the shooter from getting on top of the shot above the top of the sand, which if done would likely damage or shoot off the casing shoulder left to hold the liner or last string of casing. His duty is also to see that no uncalled for chances are taken in the handling of the nitroglycerin.

The average shot in the Burbank Field

(Continued on Page 84)



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A recently completed series of tests on Chapman Chrome Nickel Steel show the following results at 1000 degrees temperature:

Elastic Limit	51,000 lbs. per sq. in.
Tensile Strength	66,000 lbs. per sq. in.
Elongation in 2 in.	27%
Reduction Area	55%

Chapman Chrome Nickel Steel is an alloy steel, of great cleanliness and homogeneity. It is produced in an electric steel furnace, and under the supervision of the Metallurgical Department.

As production of sound, clean steel is the first requisite, the second of same importance is the proper and thorough annealing of the castings. Chapman Chrome Nickel Steel is annealed in an electric annealing furnace, free from contaminating gases, and controlled precisely by an automatic control, together with a potentiometer system.

It has been stated that when consumers acquire a full appreciation of what clean, sound electric furnace steel means in terms of national efficiency, safety and economy, we shall see a more rapid growth than has yet been seen. Its usefulness to engineering and industry has just begun.

All Chapman Chrome Nickel Steel is Produced by the Electric Furnace Process

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VALVES

MEN KNOWN IN OILDOM

W. L. Connelly

Having been engaged in the oil business continuously since 1893, W. L. Connelly, vice president of the Mammoth Oil Company, and in charge of this company's operations in Wyoming, is one of the more experienced oil men still actively connected with the business. Following his experience in the Trenton Rock fields of Ohio from 1893 until 1903, Mr. Connelly moved to Independence, Kans., and acquired production in the Bolton Pool, in Montgomery County. In 1906 he became associated with Harry F. Sinclair and was placed in charge of his production. He remained with the partnership of White & Sinclair until its dissolution.

Mr. Connelly was made vice president of the Sinclair Oil Company upon its formation and when this company's property was purchased by the Sinclair Oil & Refining Company, Mr. Connelly was elected vice president of the Sinclair-Cudahy Pipe Line Company, the transportation department of the big Sinclair corporation. This system included all the lines of equipment formerly owned by the Cudahy, Chanute and Milliken companies. The outgrowth of this system was the enormous network of lines now operated by the Sinclair Pipe Line Company. Mr. Connelly also has been president of the Freeport Mexican Fuel Oil Corporation and the Mexican-Sinclair Oil Corporation, being in charge of Mexican operations for the Sinclair interests during a period of five years.

Mr. Connelly was born in Cleveland, Ohio, and received his education at Bradford, Pa., and Cleveland. He moved to Casper, Wyo., in 1922, and has been one of the most prominent men in the Rocky Mountain oil field development. In addition to his connection with the Mammoth Oil Company, Mr. Connelly is president of the Sinclair-Wyoming Oil Company and is president of the Repollo Oil Company.

PERSONAL PARAGRAPHS

James F. Nesbit left Petrolia, Ont., recently for Miri, Sarawak, where he will drill for a Dutch company.

* * *

J. E. Swindler and J. L. Shakely of the Frick-Reid Supply Company, Tulsa, are now in Pittsburgh, Pa., on business.

* * *

James Grizzard, Bristow, Okla., producer and lease man, made a short business visit to Tulsa during the early part of last week.

M. O. Corey, drilling contractor, who has made his headquarters at Casper, Wyo., is planning to stay in Salt Lake City, Utah, during the winter.

* * *

Harry C. Potts of the valve department of the Pittsburgh Reinforced Brazing & Machine Company, Pittsburgh, Pa., was a recent visitor in Tulsa.

* * *

U. H. Bower, assistant treasurer of the Frick-Reid Supply Company, Tulsa was calling on the oil field trade at Casper Wyo., during the past week.

* * *

R. R. Templeton of the Union Oil Company of California has been made chief petroleum engineer, heading a new division of the field department for this company.

* * *

A. M. Ballard, in charge of refining and marketing operations in Oklahoma for the Sun Oil Company, left Tulsa last week for New York City on a short business trip.

* * *

E. A. Richards has left the sales staff of the Tulsa Rig & Reel Manufacturing Company to go to South America in charge of field inventory work for the Carter Oil Company.

* * *

J. F. Toops, auditor for the Marine Oil Company and allied concerns, who makes his headquarters in Denver, Colo., was a business visitor in Casper, Wyo., during the past week.

* * *

L. B. Riddle, manager of the production department for the Shaffer Oil & Refining Company, Tulsa, was passing around the cigars last week, due to the arrival of a son at his home.

* * *

E. R. Minshall, independent producer of Tulsa, and president of the Minshall Oil & Gas Company, left last week with his family for Fort Pierce, Fla., where they will spend the winter.

* * *

M. J. Gavin, refinery engineer of the United States Bureau of Mines, at San Francisco, visited Denver and various inter-mountain points in connection with the oil shale activities of the bureau.

* * *

Charles Featherstone, independent operator, of Wichita Falls, Tex., who has been sick for several days is able to be at his duties again. He is much improved following a minor operation.

* * *

W. A. Sawdon, formerly petroleum engineer in the Casper, Wyo., offices of the Bureau of Mines, has been placed in charge of the southeastern Wyoming district, with headquarters at Laramie.

* * *

Gene Collins has been made factory representative for the D. & B. Pump & Supply Company, with headquarters at Dallas, Tex. He will cover the territory which includes Arkansas and northern Louisiana.

* * *

W. B. Sutton, of the Prairie Pipe Line Company, headquarters in Tulsa, was a recent visitor in the North Central Texas oil fields, where he was looking after company affairs in the Wichita Falls district.

* * *

Victor C. Svimonoff, petroleum engineer, formerly with the National Supply companies, has returned to the United States after an extended trip through Russian Trans-Caucasia, Persia, Mesopotamia, Syria and Turkey.

* * *

J. T. Hale, of Deerwood, Minn., and F. W. Sullivan, of Duluth, Minn., directors of the Reiter Oil Corporation, returned to their homes following a meeting of the directors of that concern in Tulsa, Okla. last week.

* * *

Walter C. Hill, district manager in the Rocky Mountain region for Lee C. Moore & Company, has moved his headquarters from Casper, Wyo., to Denver, Colo. The Casper office will be in charge of A. W. Carpenter.

* * *

Erle P. Halliburton, president of the Halliburton Oil Well Cementing Company, is in California on business in connection with the rotary drilling machine which is in operation on the property of the Union Tool Company.

C. E. Good, purchaser for the Barnsdall Corporation, Tulsa, member of the Purchasing Agents' Association, of Tulsa, has been appointed member of the iron and steel committee of the National Association of Purchasing Agents.

* * *

L. V. Nicholas, president of the National Petroleum Marketers Association, Chicago, was in Tulsa last week in conference with Jacob France, president of Cosden & Co., and several other Mid-Continent refiners and marketers of refined products.

* * *

H. A. Melat, superintendent of production for the Gulf Production Company in the North Central Texas district, with headquarters in Fort Worth, spent several days the past week in the Wichita Falls district looking after company interests.

* * *

C. P. Bowie, engineer in charge of the San Francisco office of the United States Bureau of Mines, has returned to San Francisco after nearly two months spent in the Eastern and Mid-Continent oil fields in connection with the various activities of the bureau.

* * *

J. S. Wilbert, who for the past three years was in charge of the light oils with the Acme Petroleum Company, resigned November 1. Mr. Wilbert was for some time the president of the old Midland Petroleum Company, one of the early marketing organizations in Chicago.

* * *

L. G. Weeks, for four years engaged in geological investigations for the Whitehall Petroleum Corporation, Ltd., of London, in various foreign fields, left the United States again recently for South America, where he will continue his research work, this time for the Standard Oil Company of New Jersey.

* * *

R. C. Broach has been appointed southeastern district manager for the Heine Boiler Company at Atlanta, Ga. His territory includes eastern Tennessee, North and South Carolina, Alabama, Georgia, and Florida. Mr. Broach, a native of Atlanta, has previously been employed in the general sales department of the Heine Boiler Company at St. Louis, Mo.

* * *

E. C. Mitchell, formerly superintendent for the White Eagle Oil & Refining Company, has been made salesman for Marland products in northern Oklahoma. L. L. Barnes was recently apointed superintendent of stations at Oklahoma City; Lee Wells is the new agent at Enid, Okla., and Charles Bigg has been made manager at St. Joseph, Mo. for the Marland Refining Company.

* * *

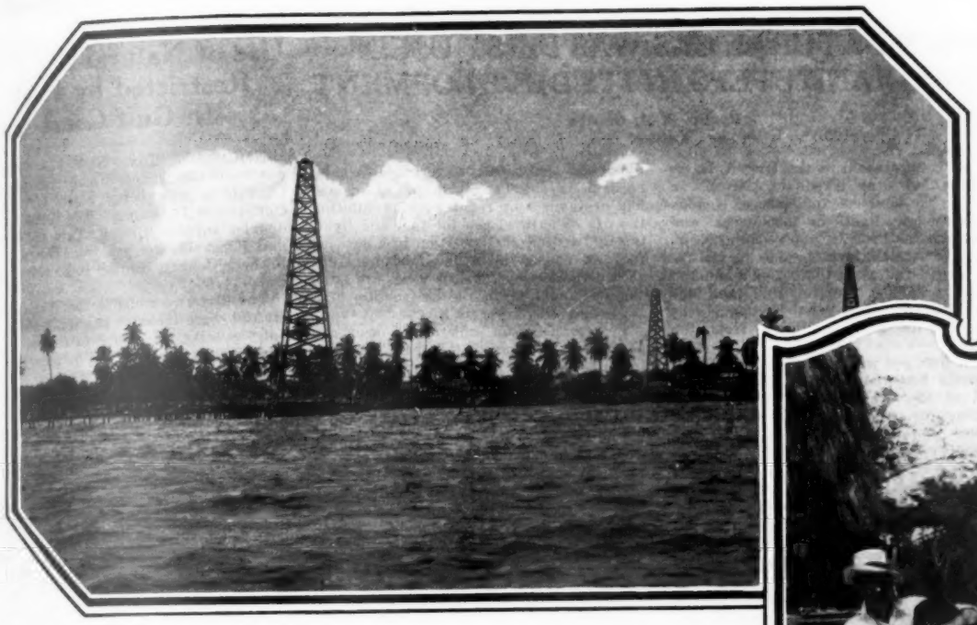
Arthur McDonald, well known purchasing agent for the Ohio Oil Company at Casper, Wyo., has resigned from that firm and will leave Casper soon to take a similar position with the Union Oil Company of California with headquarters at Fort Collins, Colo. Mr. McDonald has been with the Ohio Oil Company for 17 years, eight of which were spent in Casper.

* * *

Wesley I. Nunn, formerly advertising manager for the Marland Refining Company, Ponca City, Okla. has been made manager of the branch sales department, according to an announcement by S. C. Collins, vice president of the company, director of marketing. P. C. Wilson has been made assistant manager of the branch sales department; S. S. Smith is the new superintendent of the branch sales; H. H. Woods is now manager of lubricating oil sales and O. M. Renshaw is assistant manager of lubricating oil sales.

* * *

Kenneth B. Nowels, associate petroleum engineer of the United States Bureau of Mines, has been transferred from Shiprock, N. M., to the new Bureau of Mines experimental station, which has recently been established at Laramie, Wyo. For the past 14 months Mr. Nowels has had charge of the oil and gas development on the Navajo and Ute Indian Reservations in New Mexico for the bureau, in cooperation with the Indian office. His new duties will give him investigative petroleum engineering work in connection with drilling and producing wells in the Rocky Mountain region. J. H. Hassheider, of Covina, Cal., has been appointed as successor to Mr. Nowels.



Moore drilling derricks in La Rosa Field, on Lake Maracaibo, Venezuela. Well on left making 4500 bbls.

Another kind of "petting party," Mr. C. W. Hamilton, well known American oil man, in intimate conversation with one of his Venezuelan friends. (We are sure the Madam will not object.)

They "Come High" in Venezuela

112-Foot Moore Derricks
4500-barrel Well

In Venezuela fields, as elsewhere, wherever you go the familiar sight of Moore derricks greets the eye. Scores of these large and powerful drilling derricks are in use in these fields, and more are constantly being added, proving the truth of the saying that nothing succeeds like success.

The two derricks above are 112-foot Moore Combination drillers, in La Rosa field on Lake Maracaibo. The one on left is making 4500 bbls. The one in center is now drilling.

Proof against wind, fire, rot, and insects, Moore derricks render invaluable service in safeguarding production and heavy drilling investments.

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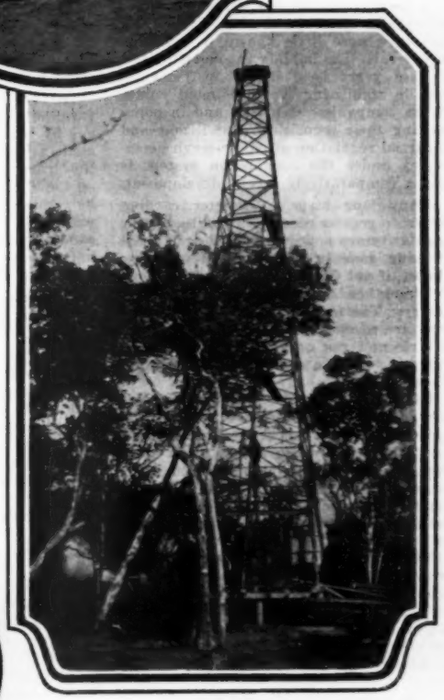


Another 112-foot Moore Driller. In Irara Field, near Maracaibo, Venezuela.

ing the early part of last week.

Union Tool Company.

Nowels.

NATURAL GAS DEVELOPMENTS

CITY OWNED PLANTS BUT SMALL FRACTION

Municipal ownership of gas companies is almost a negligible factor in the industry. Of the same 966 gas utilities in this country only some 51, or 5 per cent, are under municipal ownership. Municipally owned plants supply but 1½ per cent of the country's gas output, while privately owned companies supply the remaining 98½ per cent.

As with electrical service and water service, and as with transportation service, says the New York Evening Post, the privately owned gas companies, as a whole, give better and more economic service than the municipally owned plants, and few communities are unaware of this fact. With the industry almost 100 per cent privately owned, it is interesting to compare the price you pay for gas today with these:

New England was one of the first sections of the country to use gas for lighting, cooking and heating. Taking 25 representative communities in New England, from 1853 to 1885, the maximum cost of gas during those years ranged from $3.50 per thousand feet to $7.50 per thousand feet. The highest known charge is found in Amherst, Mass., as late as 1885.

Gas companies today, as a whole, are providing a high type of service at a fair cost to the consumer. On this basis they are firmly intrenched as permanent enterprises. And since there is no question about the essential service they render, the investor's problem rests mainly upon the selection of the securities of proper companies.

A generation ago gas companies were principally small local affairs and their securities were little known to investors in general. The holding gas company has of late years been highly instrumental both in stabilizing the investment values of gas companies' securities and in popularizing their securities. Intelligent and impartial regulation of public service companies under the commission system is also a comparatively recent development.

Many long steps to greater earning power, to greater economies and to greater popularity are now being taken. If much is being done in the electrical industry, almost, if not fully as much, is being done to strengthen the position of the gas industry. The fact in these kindred industries are so closely related that generally electric and gas organizations are found operating under a common ownership and direction.

Few of the large power and light holding companies do not now include the securities of gas properties in very substantial or lesser degrees in their holdings. The generally efficient managements which characterize the electrical business of today are therefore in many cases directing important gas properties as well.

When all the facts bearing on the growth, the vital services and the expansive outlook of the gas industry are taken into consideration, it follows without argument that gas company securities rank with the best of public utility issues in solidity and stable value.

SECOND SAND FOX FIELD

ARDMORE, Okla., Nov. 15.—Love & Thurmond have topped another gas sand at 3,156 feet in their No. 7 fee, in the northwest of the northwest of 34-2s-3w, Fox Field, and are drilling in. This is the second deep gas sand found in this test, the first having been encountered at 3,029-64 feet and gauged 2,500,000 feet with rock pressure testing 1,020 pounds. The new find is creating considerable interest in the Fox area where exploration for new deep production is occupying the most important phase of development.

WHEN NATURAL GAS WAS FIRST USED AND STEPS IN ITS DEVELOPMENT

By Dr. J. B. Garner
Peoples Natural Gas Co.

The first gas well in the United States was drilled near Fredonia, N. Y. in 1821. The first use of natural gas as a source of light in residences and buildings was in 1824, at Fredonia, N. Y. When General Lafayette made his visit to the United States as the nation's honored guest in 1824 it was reported that The Inn (Taylor House) at Fredonia was lighted with gas that came from the ground.

The first gas well in the State of Pennsylvania was that drilled by John Griswell of New Castle. Mr. Griswell was drilling for salt water near Centerville, Butler County, in 1840 when gas was struck at a depth of 700 feet. This gas was used to evaporate brine in the manufacture of salt. In 1860, a gas well was drilled at Erie, Pa., and used as a fuel in the factories. In 1862, natural gas was used as fuel in drilling oil wells on Oil Creek, and in one house at Petroleum Center.

The first natural gas corporation in the United States was the Fredonia Gas, Light & Water Works Co., which was organized in 1865. It was at this time that the real domestic use of gas began. In 1867, natural gas was used as fuel at 12 houses in Oil City.

The first long distance iron gas pipe in the United States was a 2-inch one capable of delivering 4,000,000 feet of gas per day from the Newton well to Titusville, Pa. This line was completed August 1, 1872. The first use of natural gas as fuel in the pottery industry was that at East Liverpool, Ohio, in the early seventies.

In 1873 Edwin C. Bell discovered that gasoline could be recovered from natural gas by compression. This discovery was made at the time Mr. Bell collected gasoline from the gas line to the 20-h.p. boiler on the high pressure side of the regulator; he terms this "wet gas." This discovery was made on gas which came from wells owned by Milton Stewart of Titusville, 2 miles north of Petroleum Center, Pa., on the upper Benninghoff Run.

The first industrial use of natural gas as fuel in connection with iron and steel was at Leechburg, Armstrong County, Pennsylvania, in 1874.

The first man on record to conceive of piping natural gas to Pittsburgh was the late J. J. Vandegrift. By many it was not thought feasible, but this did not deter him from making the effort. Many there were who insisted that gas would not flow through a line. The pessimists of that time claimed that gas would not flow through pipes. Still unconvinced that his theory was not correct, Captain Vandegrift had the gas shut off and disconnected the line and showed that it was plugged by coal miners who were fearful that if natural gas could be used as fuel their occupation as miners would be gone. After the plugs had been removed the line was connected and there was no further trouble other than that caused by the miners breaking or tearing up the line.

The first natural gas pipe line laid in the Pittsburgh district was in 1876. This was a 6-inch line to deliver gas from the Harvey well in Butler County to the iron mills of Spang-Chalfant & Co. and Graff-Bennett Co. in Sharpsville and Millvale, a distance of 19 miles.

The first gas well in Murraysville district was the Haymaker No. 1 well, drilled to a depth of 1,600 feet, November 3, 1878. This gas well was discovered in drilling for oil. The location of the Haymaker No. 1 well is on the Remaley farm.

In the early days of natural gas exploitation practically every town and borough in the Pennsylvania oil regions had ordinances or regulations prohibiting the use of natural gas for fuel and lighting in dwellings. Opposition to a gaseous fuel was based upon the misbelief that should the gaseous fuel be used, fire from the gas might mean the destruction of a town and great loss of life.

Pew & Emerson was the pioneer gas producing and gas distributing company in Pittsburgh. This company owned the Haymaker well No. 1, and on August 20, 1882, had drilled their first well on the Fundis farm in Westmoreland County.

The first pipe line from the Haymaker well to Pittsburgh was completed late in 1883. The size of the first pipe line laid in 1882 and 1883 to the city of Pittsburgh was 5⅝ inches in diameter and 14 miles long. This line had only sufficient capacity to carry gas from this one well.

The first gas well in the city of Pittsburgh was drilled by George Westinghouse, Jr., on May 31, 1884, on his grounds between Murtland and Lang Avenues in the twenty-first ward at a depth of 940 feet. Gas was found at 590 feet and 868 feet. The first natural gas explosion in the city of Pittsburgh occurred January 31, 1885, and was due to leaks in the mains of the Fuel Gas Co. Seventeen persons were injured.

The most remarkable natural gas producing sand is the Speechley sand, discovered at a depth of 1,900 feet on April 13, 1885, near McPhersons Corner, Pine Grove Township, Pennsylvania. This sand is 50 to 100 feet in thickness. Gas was piped to Oil City, Titusville, and Franklin. The first carbon black plant in the United States was built by Peter Neff at Gambier, Ohio, in 1885.

The first circular ever issued by a gas company in Pittsburgh in reference to elimination of wastes and efficient appliances, was that issued by the Philadelphia Natural Gas Co. in January, 1886. The first large scale plant for the manufacture of gas meters was organized in 1888 by Calvin N. Payne, and was called the Metric Metal Co.

In the early days consumers were not charged according to the number of cubic feet delivered and no meters were employed. Gas was delivered to factories at a price to compete with coal. The charge for heating stoves was $2.50 per month and for open grates $2 per month.

The first advance in gas rates in Pittsburgh was on October 30, 1890, when the rates were increased 50 per cent.

In 1894, the greatest well in natural gas annals in West Virginia was struck. This was called the Big Moses well on the farm of Moses Spencer, Indian Creek, Tyler County, West Virginia. On September 6, the open flow measurement was 100,000,000 feet.

The first natural gas compressing station was built and put in operation in the fall of 1890 at Murraysville, Pa., under the direction of J. N. Pew. The first plant for the recovery of gasoline from natural gas by the compression process was that of Andrew Fasenmyer's built in 1904 almost on the site of the original Drake well. The first absorption plant for the recovery of gasoline from natural gas in the United States was built at Hastings, W. Va. by the Hope Natural Gas Co., of which John G. Pew of Pittsburgh, was general manager, in 1913.

The first gas well in Pennsylvania was 700 feet deep. The first oil well was 69 feet deep. The Ligonier well of the Peoples Natural Gas Co., drilled in 1921, is 6,822 feet deep.

Natural gas occurs widespread in the United States in 27 States.—The Lamp.

Use of Natural Gas Restricted by Heat In Gulf Coast Area

HOUSTON, Tex., Nov. 17.—Natural gas from the Sextett Field, near Corpus Christi, is now being piped to Corpus Christi and Robstown. The White Point district supplies Sinton, Taft and Odem and Kingsville get gas from the fields in Kleberg County, 8 miles southwest of the city.

The first two wells in the White Point district were monster gas wells and blew out, resisting all efforts to control them. The locations are marked by huge craters 160 feet deep and 400 feet across. They came in 10 years ago and an active drilling campaign followed by the Gulf Production Co., Magnolia Petroleum Co., the old Producers Oil Co. and others, but no oil sands were found. At least not to produce in commercial quantities. The White Point Development Co. had some gas wells there which were recently acquired by the Moody-Seagrave interests of Galveston. The same interests acquired an interest in the leases and three gassers of the Hewitt-Pratt Co., located near Woodville, Refugio County, another district where gas wells blew in and flowed until exhausted.

From time to time rumors gain currency that natural gas will be piped to Houston, Galveston and other cities and towns in South Texas that now use manufactured gas. Magnolia Park, a suburb of Houston, is using gas made from low gravity crude oil. Men who are familiar with the gas situation express doubts about bringing natural gas to this city for domestic use, basing their opinions on the present consumption of artificial gas and fuel oil. During the long hot months in Houston and South Texas, the consumption of manufactured gas drops to as low as 2,500,000 feet per day. In real cold weather it mounts to as high as 8,000,000 cubic feet. Natural gas contains twice the number of heating units that manufactured gas does, therefore only half the present consumption would be necessary to obtain the same heating value. This consumption applies to domestic users. The manufacturing plants in this section use fuel oil, purchasing their needs by contract. The Magnolia Gas Co. completed a line from northeast Texas and north Louisiana to Beaumont, 85 miles east of Houston, but the supply will be used by the Magnolia Petroleum Co. at its Beaumont refinery.

To pipe natural gas to Houston and vicinity from Refugio, McMullen or some of the other districts to the southwest would mean an investment of approximately $5,000,000 for mains and distributing lines, not including drilling operations in the fields.

COLUMBIA CARBON REPORT

Columbian Carbon Co. for nine months ended September 30, 1924, reports consolidated net income of $1,705,969 after depreciation, depletion and Federal taxes, equivalent to $4.24 a share earned on outstanding 402,081 shares of no par stock. This compares with $2,969,129 or $7.38 a share in corresponding period of 1923.

Net income for third quarter this year was $477,978 or $1.19 a share, comparing with $531,930 or $1.32 a share in preceding quarter and $813,822 or $2.02 a share in the September quarter of 1923.

Consolidated income account for nine months ended September 30, 1924, compares as follows:

Net after expense	$3,244,530	$4,349,833
Depreciation and depl.	1,296,061	960,204
Federal tax reserves	242,500	420,000
Net income	$1,705,969	$2,969,129
Dividends	1,206,243	1,206,243
Surplus	$499,726	$1,762,886

EQUIPMENT AND SUPPLIES

PORTABLE FOAM UNIT HAS NEW ADVANTAGES

A great advance in the science of foam fire protection is marked in the announcement that the Foamite-Childs Corp. has perfected a 40-gallon portable foam chemical engine which embodies the principles of operation of the Foamite System for the protection of tank farms and refineries.

The change in design, compared with the type of 40-gallon foam engine in use for the past few years, is important. While the new engine has substantially the same outward appearance, internal construction has been entirely redesigned.

The volume of firefoam generated by this new metered type engine is almost double the quantity delivered by the old type engine from the same quantities of chemical solutions. The quality of the foam produced throughout the entire discharge period is said to be infinitely superior.

In the new metered type engine a medium pressure is generated at the start, which gradually decreases during the entire period of effective discharge. This medium pressure is sufficient to provide an effective range during the entire discharge period.

Another important feature of the metered type engine is the increased period of effective discharge. This is made possible by the fact that the foam does not break down in the machine, and the foam is discharged in a steady stream, rather than a great gush at the beginning of discharge, followed by a rapid fall in pressure typical of the old type.

As in the Foamite System, the two solutions are stored in two separate tanks within the engine shell. A system of baffles, orifices and pressure-equalizing tubes has been arranged to measure the flow of two solutions to the mixing chamber at the head of the engine shell, where they combine to form firefoam. This high quality of firefoam is forced through the hose immediately as it is generated, in a swift stream of fire-smothering gas-filled bubbles.

In addition to the extensive tests made by the manufacturer, the new metered type engine was submitted to the Underwriters' Laboratories where rigid inspections and tests were imposed. The Underwriters' Laboratories have approved the device as effective on both Class A and Class B fires, winning for the new engine the distinction of being the first 40-gallon foam engine to bear the Underwriters' label.

RYERSON BUYS INTEREST IN REED-SMITH STEEL CO.

The stockholders of Joseph T. Ryerson & Son, Inc., have purchased a substantial interest in the Reed-Smith Co., Milwaukee. The Reed-Smith Co. is an independent steel warehousing company serving the industry in that section of the country.

Under the new plan the officers of the Reed-Smith Co. are: D. M. Ryerson, president; George W. Smith, vice president and general manager; E. L. Hartig, treasurer and Carl Gallauer, secretary.

The Milwaukee stocks and facilities of the Reed-Smith Co. are soon to be increased so that better service than in the past may be given.

In addition, Joseph T. Ryerson & Son will maintain practically daily car service from Chicago for prompt delivery of special orders and sections that are only carried in the largest warehouses.

Joseph T. Ryerson & Son operates six plants at Chicago, St. Louis, Cincinnati, Detroit, Buffalo and New York. A complete range of steel products, including bars, shapes, plates, sheets, tubes, rivets, bolts, nuts, etc., are maintained at all six plants.

MODERATE IMPROVEMENT SHOWN IN QUANTITY OF STEEL BUYING

By B. E. V. Luty

PITTSBURGH, Pa., Nov. 17. — Buying of steel began to increase immediately after the election, but there was nothing like a rush of buying and the improvement up to date has been rather moderate, in point of tonnage.

In the general tone of the market there is a very marked improvement. Sellers now feel that the future of their market is relatively well assured, while buyers, apart from being freer in placing orders for prompt shipment, have shown a disposition in some instances to place contracts for first quarter delivery. Such overtures have been refused as mills are not ready at present to obligate themselves through next March at present prices.

The official report of steel ingot production in October shows that the steel mills ran a trifle better during the month than the current estimates. The daily rate of ingot production was 115,239 tons, representing 66.4 per cent of capacity and an increase of 6.4 per cent over the September rate. Production in the first half of this month was at fully as good a rate as was shown by October.

The Steel Corp.'s unfilled obligations at the end of October were 3,525,270 tons, representing an increase of 51,490 tons during October, against increases of 184,203 tons in September and 102,505 tons in August, and decreases in each of the five months preceding. Rail orders for 1925 delivery not only accounted for all of the 51,490 tons increase in the total order book in October, but balanced losses in other finished products to the extent of perhaps 100,000 tons or more, for while buying was good in the first week or two of October, it fell off rather sharply afterwards, up to the election. Rail bookings in October probably exceeded rail shipments by more than 150,000 tons.

There are no definitely quotable changes in steel prices this week, but there is a very important change in the general tone, for clearly the steel market shows no declining tendency at any point, while in two spots at least, in plates and sheets, it shows a little firming up tendency. There has not been much experience with the plate market since the election, but in several instances very attractive orders have gone at the market quotation of 1.80 cents when just before the election there was cutting on the most competitive business. In sheets, the shading which became somewhat widespread on galvanized sheets a couple weeks before the election, below the regular market of 4.60 cents, has largely disappeared, while one important producer, the American Rolling Mill Co., has advanced its price on black sheets $3 a ton to 3.65 cents and its price on galvanized $2 a ton to 4.70 cents, the expectation being that other mills would eventually follow.

Tubular goods have been rather quiet. There has been scarcely any line pipe business, even in small lots, while other oil country goods are in light demand, in keeping with the season. Merchant pipe demand is quite fair, but is only in small lots for quick shipment. Most of the butt weld furnaces are running, but less than half the lap weld furnaces, and the pipe industry in general is operating at 55 to 60 per cent, against about 75 per cent in August.

NEW HEAT EXCHANGER FOR REFINERY USE

A novel design of heat exchanger for oil refinery use is being made by the Griscom-Russell Co., New York City. By using two short exchangers connected by a flexible bend and shell cover, a compact, rugged, readily portable, and easily installed unit is obtained, approximately half the length of a single unit designed for equivalent duty.

This twin arrangement also divides the tube and shell expansion between two units, and makes inspection and cleaning much easier. In this exchanger, the cooling liquid and the liquid to be heated flow in opposite directions for most efficient exchange of heat. Two styles of baffles are used to guide the liquid around the tubes, the selection depending upon the allowable pressure loss in the shell. All oil connections are at the same end to simplify piping, and floating heads and head covers eliminate strain on tube heads and prevent danger of cracked tube plates.

DESCRIBEST NEW RECORDER

The American Schaeffer & Budenberg Corp. has published a new pamphlet illustrating and describing a newly designed recorder of the strip or continuous chart type. It is intended for applications where it is desirable to obtain a record of temperatures or pressures over an extended period of time and where the cycles of operation are of relatively short duration requiring a wide, open record enabling detection and study of the slightest variations.

The Columbia Strip Chart Recorder is furnished for the recording of all pressures (steam, air, water, ammonia, hydraulic, etc.) vacuum, and temperatures up to 1,000 degrees Farenheit. The chart of this recorder is 6 inches wide with effective recording area of 4½ inches and is 90 feet long. The clock movement is of special construction and moves chart 6 inches per hour. An automatic rewind device takes up the recording chart.

GENERATORS TO RUSSIA

A shipment of Ajax gas generators is now being made by the Baird Supply Co., Tulsa, for final delivery to the Russian Oil Trust, Baku, Russia, for use in cennection with Black Bear gas engines. This gas generator is designed to overcome the gas engine fuel problems on pumping properties by developing from the crude oil a sufficient gas for the continued operation of such equipment, even though the previous natural casinghead or residue gas is exhausted.

The gas release is secured by passing crude oil through the generator which is heated by the gas engine's exhaust and by the method hurries a natural release of the lighter vapors off the oil. These lighter vapors are combined with air and then delivered to the engine as a gas engine fuel. In operation, approximately 10 barrels of crude oil are passed through the generator in 24 hours. This oil, after pasisng through the generator is returned to the field storage and shows no appreciable loss in either volume or value through the handling, yet insures the producer full pumping of the property at practically no fuel cost.

OPENS TULSA OFFICES

The Carbide and Carbon Chemicals Corp. announces the opening of Mid-Continent offices in the Exchange National Bank Bldg., Tulsa, from which point the installation of the gasoline stabilizing process in several gasoline plants will be directed.

NEW ELECTRIC HOIST FOR SMALL CAPACITY

The Roeper Crane & Hoist Works, Inc., Reading, Pa., has just developed a new small electric hoist that will complete its range of electric hoists from 500 lbs. to 20,000 lbs. capacity. This hoist was designed to meet the need of small capacity, high speed electric hoists. Among the advantages cited by the manufacturer are the following:

The hoist is worm geared, with the worm placed above the gear. This is the reverse of worm gear drive on most tools, and removes the cause of considerable wear and its attendant troubles. The worm shaft is equipped with a ball end thrust bearing.

Motors are of manufacturers' standards, and are mounted on their feet directly upon an extension of the hoist frame. This is in keeping with the best engineering practice. The main frame of the hoist is a one-piece casting, properly machined, that contains all bearings, so that shafts and moving parts, once assembled, can not get out of alignment.

Wrought steel suspension plates, reaching from drum shaft to overhead suspension members, relieves all tension on castings, and provides a means for hook, link, clevice, or any form of special suspension. An automatic stop of the trip lever type, that is positive in its action, affords protection in extreme lifting and lowering. This stop can be adjusted for any distance of hook travel.

The need of a load brake is removed through the worm drive, thus avoiding all of the trouble attendant to brakes of this character. The motor is equipped with a mechanically operated jaw brake, acting in series with controller, which brings the motor to a quick stop, preventing drifting of the load when the power is cut off.

BOOKLET ON TOOLS

The Hughes Tool Co., of Houston, Tex., has recently published an attractive bokolet on the "Care and Operation of Hughes Oil Well Drilling Tools." The booklet goes into details particularly concerning the care of Hughes Simplex rock bits used in drilling holes by the rotary method. The Hughes weight indicator, volume and quality of mud used in circulation, reaming work, crooked holes, drilling with a Hughes Simplex rock bit and a discussion of the parts of the rock bit are only a few of the interesting items discussed. The booklet is illustrated, showing the various parts of the different tools and the methods of replacing and cleaning these parts.

TO DISTRIBUTE TRACTORS

The Holt Manufacturing Co., Peoria, Ill., announces the appointment of the Dravo Equipment Co., Cleveland, Ohio, as distributors for Holt "Caterpillar" tractors in eastern Ohio. This concern also announces appointment of the Abbott Motors, Inc., New Orleans, La., as distributors for the company's products in southern Louisiana and southern Mississippi.

PLANS NEW WAREHOUSE

AMARILLO, Tex., Nov. 15.—The Dunigan Tool & Supply Co. of Breckenrige, Texas, plans to erect a tool and machine shop in the Panhandle oil field district soon.

TO BUILD NEW PLANT

The Gibb Instrument Co. of Bay City, Mich., manufacturers of electric welding machines and electric heating machines, has broken ground for a new modern plant.

LUCEY TWIN

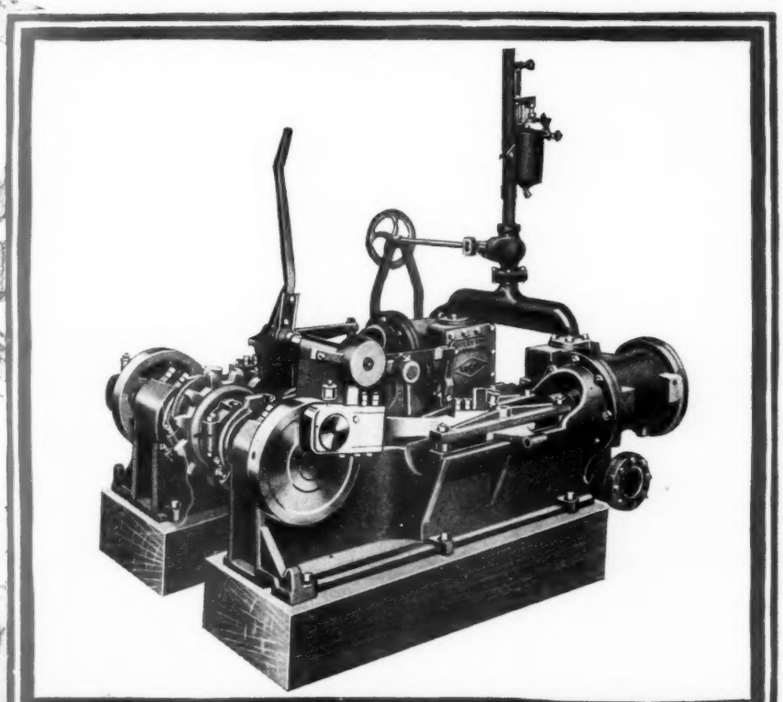
"Better Get a Lucey Twin Cylinder on this Job."

"It's the best unit I know of for driving rotary drilling equipment. It has a wide range of speed,—extremely sensitive—practically no vibration,—perfect reverse action and it can't possibly stop on dead centers."

Wherever THE NAME IS A LUCEY GUARANTEE there's Oil

REG. U.S. PAT. OFF.

CYLINDER
Drilling Engine



Features of the Lucey Twin Cylinder Engine you ought to know and be familiar with:

Simple in that it is made of few parts.

Rigid because the beds, base and valve stem guides are made in one casting,—a feature which also insures accurate alignment.

Accessible on account of its design—all moving parts can be readily reached and adjusted.

All wearing parts—such as connecting rod brasses, valve stem guide, link and crosshead, — interchange with our standard single cylinder engine.

All eccentric hubs and sprockets are made in halves and are easy to remove.

Easy to reverse due to balance and design of reverse link suspension.

Throttle valve manifold can be furnished to take throttle valve in center,—as shown by the illustration,—or offset to one side.

Regularly furnished in 10"x10" size.

Any Lucey Branch will be glad to give complete information about this remarkable driving unit.

Lucey Manufacturing Corporation.

Offices:
New York Pittsburgh Los Angeles

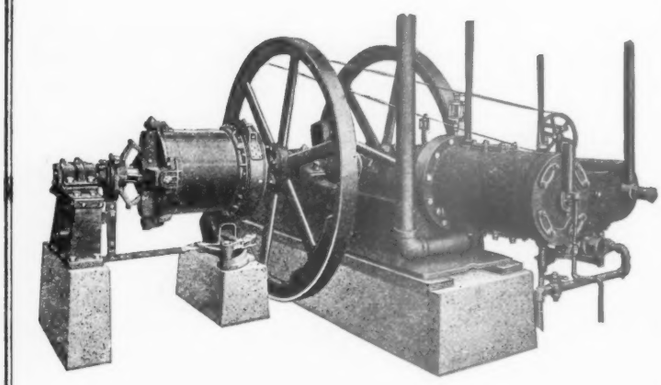
Branches:
Corsicana, Texas—Eldorado, Ark.—Smackover, Ark.—McKittrick, Cal.—Tulsa, Okla.—Tonkawa, Okla.—Shreveport, La.—Coalinga, Cal.—Taft, Cal. Beaumont, Texas—Healdton, Okla.—Los Angeles, Cal.

Works:
Chattanooga, Tenn. Houston, Texas

Foreign Branches:
Tampico, Mexico—London, England—Soerabia, Del.—Ploesti, Roumania

Agents:
International Supply Company—Stroud, Okla., and Wewoka, Okla.
General Supply Company, Casper, Wyo.

Pulling Tools



A drilling engine, to be successful, should be able to pull tools fast. The following report shows how Reid Drilling Engines can pull tools.

The well was located near Logan, Ohio. The tools used were a 3½ inch by 38 foot stem, a 5 inch by 5 foot bit, drilling jars and rope socket, the string totalling forty-six feet in length.

This string of tools was pulled from a depth of 2525 feet in eight minutes, 15 seconds, or at the rate of over 300 feet per minute.

The bailer was pulled from this depth, 2525 feet, in three minutes, 25 seconds.

Speed pulling tools and bailers as shown in the above report is one of the many advantages gained by using Reid Drilling Engines. They are fast and easy to handle. Their economy of fuel is such that an engine has been known to pay for itself in the amount of fuel saved on the first well drilled.

We have printed a booklet in which will be found reports of some of the work done by Reid Gas and Oil Drilling Engines. A copy will be furnished you upon request. Ask for Bulletin No. 28.

Joseph Reid Gas Engine Company

Oil City, Pennsylvania, U. S. A,

BRANCHES AND AGENCIES — Marietta, Ohio; Logan, Ohio; Newark, Ohio; Ft. Recovery, Ohio; Shreveport, La.; Charleston, W. Va.; R. B. Moore, Bolivar, N. Y.; Bradford Supply Co., Robinson, Ill.; Frick & Lindsay Co., Bradford, Pa., and Kentucky Distributors; S. R. Shoup, 708 Pacific Electric Bldg., Los Angeles, Cal.; Oklahoma, Kansas, Texas, Arkansas and Wyoming, Frick-Reid Supply Company, Tulsa, Oklahoma, and Branches.

BRANCH SHOP—TULSA, OKLAHOMA

Reid

TRADE MARK REGISTERED

NEW STRUCTURES IN NEW MEXICO ARE REPORTED BY GEOLOGISTS

By F. B. Taylor

CASPER, Wyo., Nov. 15 — Montana and Colorado are quieting down as winter comes and the Wyoming oil fields are also cutting down work but the warmer districts of New Mexico and some parts of Arizona are becoming active as the snowfall there does not interfere to any great extent with oil field work. With a climate that permits oil field workers to get out in the open practically all the year round, the scouts and geologists have turned their attentions to New Mexico this fall and already, reports of new structures are coming in. Some reports are authenticated by geological reports that promise well for New Mexico as a coming oil region.

The Wagon Mound structure in Mora County, New Mexico, has been surveyed and promises very well. The Arkansas Fuel Oil Co. of Pittsburgh, Pa., is now preparing to develop this structure, having taken over the lease from the Interior Development Co., which secured the better part of the structure.

The Arkansas Fuel sent Geologist E. A. Stiller with a corp of men to survey and report on the Wagon Mound and Mr. Stiller has completed his report, which recommends the testing of the Wagon Mound to a depth of about 3,000 feet.

New Mexico is now producing oil in two widely separated localities. The Midwest and other companies have developed production in the northwestern part of the State in San Juan County and further wildcatting has resulted in the opening of a field in Eddy County, in the Permian formation.

The country in New Mexico presents a deeper stratigraphy than Wyoming and Montana; the Cretaceous in the two latter States is quite thick and produces most of the oil, but in New Mexico, the Cretaceous takes the place of the Tertiary in Wyoming and is quite thin in comparison. The surfacing in the New Mexican districts, where petroleum is expected is generally in the lower Cretaceous and the Greenhorn limestone and the Dakota sand are often found on the surface and afford a ready means of location in the strata. Below these come the Purgatoire formation which seems to be a deposit absent in the northern States of the Rocky Mountain area. This formation was laid down in New Mexico and Colorado by ocean currents carrying sediments from the southwest, but the deposit did not reach north of central Colorado and is unknown in Wyoming and Montana probably because northern Colorado at that period was lifted above the surface of the water.

Below the Purgatoire lie the Red Beds containing the Morrison and associated members and the Juarassic and Triassic, Permian, Pennsylvania and below the latter the Cambrian. There is no Devonian or Silurian.

The petroleum deposits are expected to be found in the formations above the Pennsylvania and possibly in the Pennsylvanian though so far the explorations have shown small chance of there being oil or gas in this latter formation. This brings the horizons where petroleum may be found at about 3,000 to 4,000 feet from the surface on the structures where the Dakota sands are on the surface and this condition exists on nearly all the structures over New Mexico except in the northwestern part.

GEOLOGICAL COLUMN

Age	Group	Local Name	*Thickness
Cretaceous	Colorado	Greenhorn limestone	220
		Dakota sand stone and shales	200
Lower Cretaceous		Purgatoire formation	
		Morrison sand stone and shale	
Jurassic		Todilto limestone	400
Triassic		Wingate sand stone	200
		Red shales	
	Dockum	Arkosic sand stone	800
Permian		Chupadera formation	
	Mansane	Abo sand stone	850
Pennsylvanian	Magdalena	Dark limestone	
		Black shales	600
Pre-Cambrian granites and schists.			

*Thickness approximate only.

It is easy to obtain some idea of the formations that will be encountered in a well drilled in the Rocky Mountain area on account of the mountains. At the base of the ranges the sedimentary rocks and strata come to the surface and usually at a sharp angle approaching the perpendicular. Thus in the Lost Soldier Field of Wyoming it is possible to go to the Ferris Mountains a few miles away and walk over the exposed sands and shales that are drilled through and the production found in the field. A tape line will give the thickness of each formation with great accuracy. In New Mexico the Mountain uplifts are frequent and a comprehensive log of what the wells in the wildcat districts will encounter can be had with but small trouble by simply traveling to the nearest range and measuring the strata on the surface.

In the Salt Creek Field, the geologist can go to the Big Horn Mountains, where the whole stratigraphy of the Salt Creek Field comes to the surface and can be examined and measured to suit any needs.

NINE GAS WELLS NOW IN THE MISSION POOL

OKMULGEE, Okla., Nov. 15.—Nine gas wells with a combined initial production of at least 55,000,000 feet have been completed in the "Mission Pool" which is just east beyond the city limits of Coweta and on and near the site of the Indian Mission, which is a landmark in eastern Oklahoma. It is in 17-17-16.

The first well was brought in several months ago, then drilling lagged, but the last eight weeks has seen the completion of eight, all of which are hooked up to the Oklahoma Natural Gas Co.'s line.

The tenth test for the field is due now. Carder-Sewell and others in SW cor. SE NW, Section 17-17-16 are running pipe at 1,007 feet with the sand just touched. They found away higher than it appeared in the other wells in the pool, and the owners feel certain of getting the biggest production yet found there.

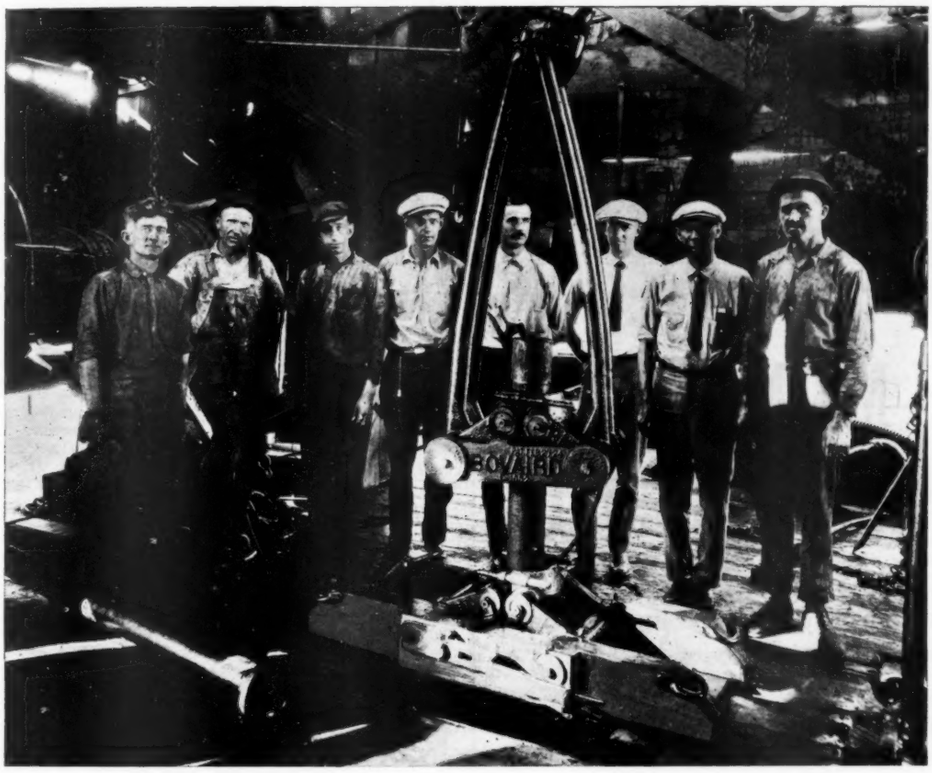
Knox & Shouse, who got the ninth producer, have just finished shutting in its flow of 6,000,000 feet with a rock pressure of close to 300 pounds. The well, located in SE cor. SW NW, Section 17-17-16, found top of pay sand at 1,022 feet and penetrated pay 14 feet before shutting in. It is a north offset to a well recently completed by Skelly Oil Co. which, by the way, was the smallest well in the pool, its production ranging around 3,500,000 feet.

As it stands, the field is a quarter of a mile in extent. Other locations have been made for future drilling on proven locations.

ORDERS FOR TANK CARS

The Standard Tank Car Co., of Sharon, Pa., announces that the following orders for tank cars were received recently: Conley Tank Line, Pittsburgh, Pa., six insulated, 8,050-gallon capacity tank cars; Misko Refineries, Laredo, Texas, two triple compartment 8,050-gallon; Caddo Central Oil & Refining Co., Shreveport, La., one 8,050-gallon; and the Sun Oil Co., Philadelphia, seven compartment tank cars.

Fast—Practical—Safe



The Bovaird Grip Casing Elevator and Spider on the Skelly Oil Company Lease near Bristow, Okla.

Bovaird Grip Casing Elevator and Spider

Equipment used on drilling or producing wells must carry a marked degree of safety so that life and property have protection.

Also, it must be efficient and capable of performing its work with dispatch.

Lastly, it must be practical. Workmen should carry on their operations easily and get results.

The Bovaird is practical.

The Bovaird Supply Co.
Tulsa, Okla.

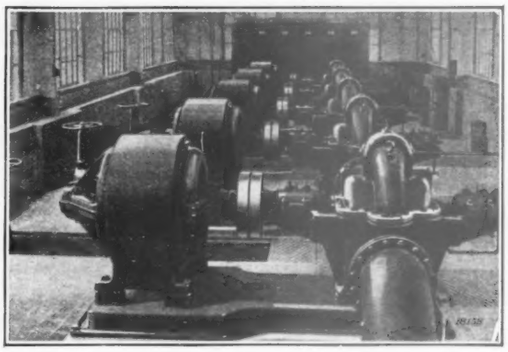
Stores:

Sapulpa, Okla.
Beggs, Okla.
Slick, Okla.
Lyman, Okla.

SUPPLY BOVAIRD COMPANY

Stores:

Okemah, Okla.
Bristow, Okla.
Stroud, Okla.
Independence, Kans.



REDUCE MAINTENANCE AND OPERATING COSTS

A Cameron pump definitely insures low maintenance and operating costs.

Each Cameron pump is designed to meet its specific conditions of operation. An extended shop test proves it mechanically perfect and hydraulically correct before shipment.

Immediate renewal of all wearing parts regardless of the age of the pump is anticipated in the design, and guaranteed by a stock always on hand,—shut-downs and repair costs are cut to a minimum.

You are near one of our branch offices where our pump engineer is ready to help you with your pumping problems.

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Offices in Principal Cities the World Over
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Ingersoll-Rand

A. S. Cameron Steam Pump Works

188-DV

USES AND LIMITATIONS OF PRESENT GASOLINE MANUFACTURE METHODS

*By G. G. Oberfell

The present methods of extracting gasoline from natural gas depend upon the principles of compression, cooling and absorption. The compression process employs pressures varying from 50 pounds per square inch to about 300 pounds per square inch. The compressed gas is cooled generally by passing it through water cooled pipes. The compersion and cooling result in condensation of a portion of the recoverable gasoline constituents. The absorption process consists in absorbing the gasoline vapors from the gas by means of either a liquid absorbing medium or a solid absorbing medium. The gasoline is separated and recovered from the absorbent by a distillation process. The denuded absorbent is then cooled and used over again.

There are so many factors affecting gasoline recovery it is impossible to draw a definite boundary for any of the processes. The possibilities for future improvements make it difficult and hazardous to prophecy what the future may hold. The natural gasoline industry has gained considerable experience with the use of the various methods, and this information, coupled with the theories underlying the various processes, affords a means of drawing conclusions as to their uses and limitations.

Compression Process

The present trend is along the lines of absorption processes. Compression methods do not operate with as high a degree of efficiency. Absorption plants can be built and operated more economically if large volumes of gas are to be treated. It is probable the straight compression plants of the future will be built only on gas volumes having very high gasoline content.

The chief reason why compression plants do not operate with as high efficiency as absorption plants, is explained by the physical laws governing the principles upon which the compression process depends. Dalton's law of partial pressures is involved in the compression of gas for gasoline recovery. A consideration of the law of partial pressures makes it evident that in compressing gas for the purpose of causing condensation of the vapor components, only a fractional part of the total pressure exerted on the gas is effective on the components it is desired to condense.

Naturally a vapor component of any gaseous mixture will not start to condense until the mixture is compressed to a pressure hgh enough to cause the effective pressure on that component to be a trifle higher than its vapor pressure. The partial pressure of the component must be equal to its vapor pressure before condensation begins. The application of Dalton's law is well presented in the following description, taken from a Bureau of Mines publication:

Dalton's Law

"Assume that a natural gas contains 1.5 per cent by volume of hexane (approximately 0.5 gallons per 1,000 feet) at 80 degrees Fahrenheit. The vapor pressure of hexane at 80 degrees Fahrenheit is 2.9 pounds per square inch. The pressure necessary before the hexane will start to precipitate is (100÷1.5) x 2.9 or 193 lbs. per square inch. The pressure necessary to cause the hexane to start to condense at other temperatures is shown by the curve based on their vapor pressures. If natural gas is contaminated with an equal volume of dry gas or air, the hexane content will be decreased to 75 per cent and a pressure of 386 pounds per square inch will have to be applied before the hexane will start to condense. The same reasoning applies to pentane, heptane and other gasoline vapors in casinghead gas and on the partial pressure of each component depends the pressure at which the compressors must be worked in order to precipitate the gasoline."

Knowing the percentages of the various components in casinghead gas and their vapor pressures at the prevailing temperature, it would appear a simple calculation involving Dalton's law would suffice to predict the pressures required for various extraction efficiencies, or to predict the efficiency obtainable at given temperatures and pressures. However, the pressures actually required are lower than those predicted by such calculations; the efficiency obtainable in actual plant practice at a given temperature and pressure is greater than that predicted by such a calculation. This is due to the various components precipitated being soluble in each other and the vapor pressure of any component in the solution not as great as if it were alone present and in the pure state.

Two-Stage High Pressure

Some operators still prefer the two-stage high pressure process up to 250 lbs. on rich gas because they are skeptical regarding the success of the oil absorption process on very rich gas. The combination single-stage compression and oil absorption process, below 30 lbs. gauge pressure, has been successfully operated on gas having a gasoline content in excess of 10 gallons per thousand feet. Actual practice, as compared with two-stage compression, has shown or indicated the following advantages of the oil absorption process:

1. Less machinery to install.
2. Cheap first cost.
3. Less fuel required.
4. Lower maintenance.
5. Lower operating cost.
6. Trifle better producti.
7. Increased production.
8. Reduction in fire and explosion hazard in some instances.
9. Through control of oil rate and recompression of vapors the absorption process can be supplied so as to eliminate excessive gross production, thereby reducing delays and expenses in handling, storing and weathering the excessive gross production incident to two-stage high compression practice.
10. Variety of products with attendant advantage of meeting various sales specifications.

Plants operating on rich gas, which have a dependable naphtha supply, under favorable market conditions, and which are required to transpot their product by pipe line a consideable distance, can probably show better returns by combination high pressure naphtha blending. Again, some plants are required to carry high pressure to dispose of their residue gas, or are operating on very rich gas with small volumes. Such plants do not offer very many advantages for the installation of the oil absorption process.

Oil Absorption Process

The oil absorption process depends in its application upon the laws of Henry and Dalton. Henry's law may be stated as follows: "The mass of gas or vapor dissolved by a given quantity of liquid is directly proportional to the absolute pressure if the temperature remains constant." Partial pressures are also involved in the oil absorption process. Considering both Henry's and Dalton's laws, the pressure effective for absorption is the partial pressure of the vapors to be absorbed and not the total pressure under which the gaseous mixture is confined.

The cost of installation and the capacity of the absorption elements of an oil absorption gasoline plant are dependent primarily upon the amount of oil that can be efficiently taken care of by the pumps, oil coolers, stills, heat exchangers, boilers, preheaters, etc. Rate of oil circulation is therefore the fundamental factor in the design. There are a large number of factors affecting oil rate requirements. Some of the more important ones follow:

1. Gasoline content of the gas and characteristics of the gasoline forming hydrocarbons.

(Continued on Page 138)

*Delivered before Tulsa Section, American Institute Mining and Metallurgical Institute, Nov. 7.

SPANG
Weldless Drilling Jars

The following paragraph, which tells what one user thinks of SPANG Weldless Jars, we lifted in its entirety from a letter received recently from a Mid-Continent operator:

> "After our own experience and after hearing the testimonials of others, we feel that they are *the best for the money invested* as well as *the best that money can buy.* We have actually already received more wear out of these jars than an equal amount of money would buy in other jars; at the same time eliminating the hazard which a person *has to buy* in the purchase of welded jars."

Substantially, that is the same chorus sung wherever the SPANG Weldless Drilling Jar is used. Send your order to your own supply dealer. He has SPANG Weldless Jars in stock.

SPANG
Thread Protector

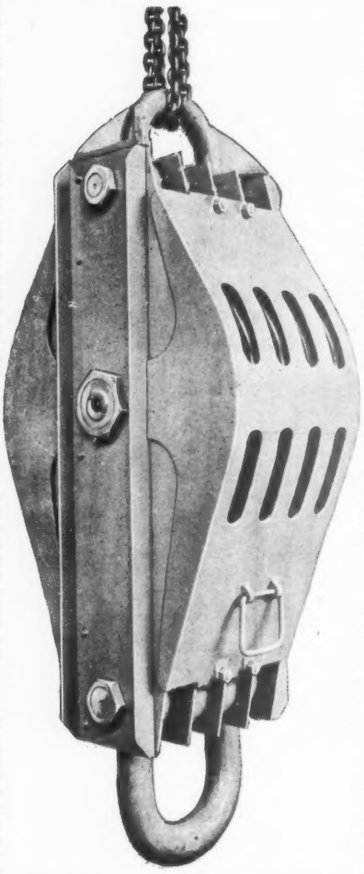
Protect your Tool Joints with SPANG Thread Protectors. *Like all SPANG products they guarantee absolute satisfaction and long, durable service.*

Excellent Joints.
Greatly increased footage drilled.
Elimination of Jar Fishing Jobs.
Reduction of drilling risk.
Three to five times as much service as other jars.
Increased profits.

SPANG AND COMPANY
Butler, Penna.

Sold by Leading Supply Houses Everywhere

DREADNA
EQU

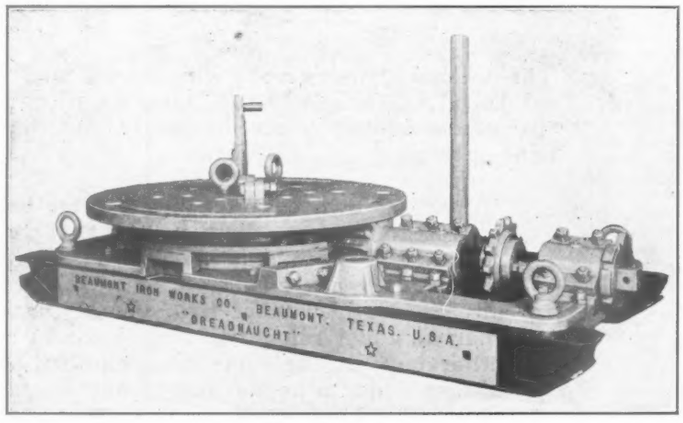


THIS GIANT DREADNAUGHT Traveling Block has a Patent Center Grease Pin which is 6" in diameter and holds sufficient grease for two or three weeks continual operations.

By means of this device one turn of a screw lubricates each bearing independently and beyond the shadow of a doubt. No dust or other foreign substance can find its way into Grease Pin or bearings.

The bearings in this Traveling Block are long and heavy, and each sheave is heavily bronze bushed.

The Steel guards can be easily removed if not desired. The Block may be purchased without guards if the customer doesn't want them.



IN THE ROTARY fields of America there is no faster, finer rotary than the DREADNAUGHT. It is most widely used in Oklahoma and Texas, where men hold the world's record for handling drill stem.

The DREADNAUGHT Rotary is built of manganese steel. The bearings are all very long and only shafts of unusual size are built into this machine.

It is a very plain, simple rotary, with a low, flat top. It has great strength. In our western oil fields there are many instances where in its lifetime it makes more than three times as many holes as its less sturdy competitors. This is partly accounted for by the teeth in the Dreadnaught Rotary. They set at the right angle and are made of the right stuff. Only the making of many wells can make a DREADNAUGHT Rotary show wear.

It is made in three sizes: 14, 21 and 27". It has chain oiling boxes, slips, slip rings, and interchangeable grief stem drive bushings.

This DREADNAUGHT Rotary, like all other DREADNAUGHT products, is made in our Beaumont plant under ideal working conditions, and of the best materials in the world for the purpose.

THE SUPERINTENDENT of extensive operations for one great producing company recently declared that in using DREADNAUGHT Equipment his firm saved enough on wire lines alone to pay for each rig in twelve months. He has standardized on DREADNAUGHT Draw Works, Crown Blocks and Traveling Blocks.

If you would send for literature on DREADNAUGHT Equipment, or talk with the men at the Frick-Reid Store in your field about it, you would find the subject very fascinating.

Of course only a few of the DREADNAUGHT leaders are listed here.

THE [illegible]T illu
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gasoline [illegible]erose

FRICK-REID SUPPL

PITTSBURGH, PA. **TULSA, OK**

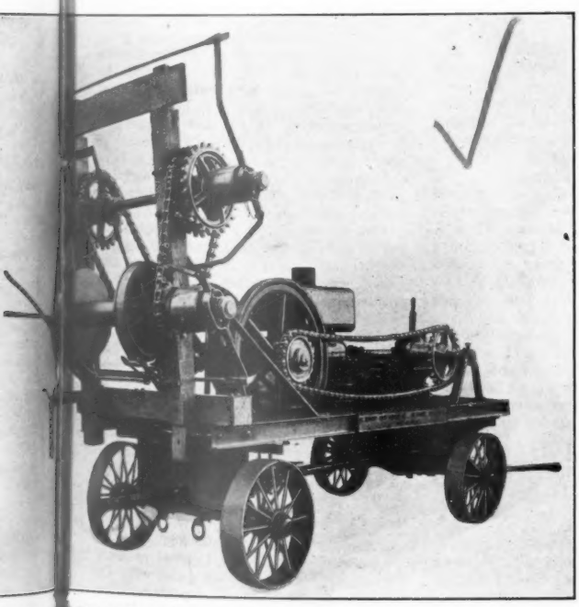
West of the Mississippi—Stores Ever

AUGHT ROTARY QUIPMENT

THE [illegible]T illustrated below [illegible]l a Sub-Chaser. It is b[illegible] our DREADNAUGHT at Beaumont, which m[illegible] a thoroughbred. It has ser[illegible] number of great organizati[illegible] faithfully under widely di[illegible]t conditions. It is used a[illegible] as well as at home. A[illegible]omer declares it to be "as g[illegible]for 1500 feet as a nickel is [illegible]eanuts."

The Sub[illegible]ser has friction clutches. [illegible]perates on either gasoline [illegible]erosene. It is mounted on a wagon with dust-proof bearings. It sets up in the derrick the same as standard draw works. The post on the bottom bolts to the derrick sill.

The Sub-Chaser is worth its weight in gold in the sort of work for which it is obviously adapted. And it illustrates the fact that we are always ready and eager to cooperate with producers in building special equipment of any sort.



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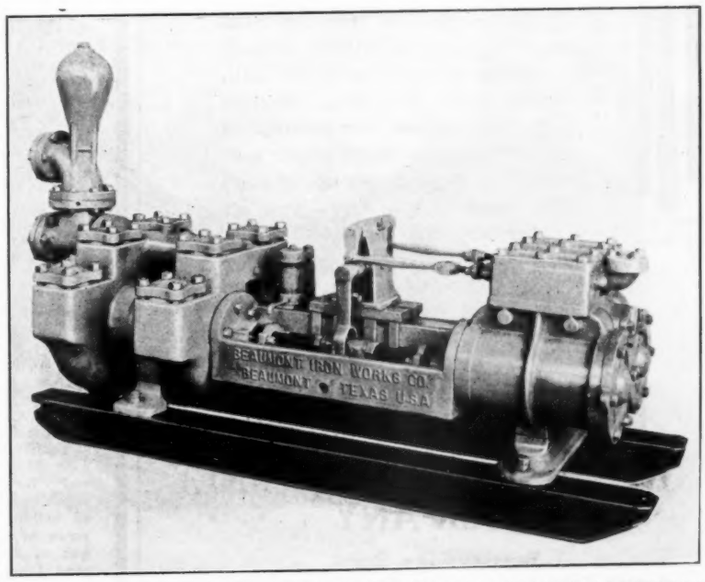
Other Frick-Reid Products

"Camel Hair" Belting—Axelson Pumps and Sucker Rods—Reid Engines and Powers—Ratigan Beam Hangers, Sure Grips, Etc.—Whitlock All-Manila Cordage—Transit Steam and Power Pumps—Dreadnaught Rotary Equipment—Donovan Boilers—Roebling Wire Lines—F-R Service Drilling and Pumping Belt—Jones & Laughlin Tubular Goods—Complete Cable Tool. Equipment—F-R Electric Light Plants—Warren Steam Engines—Johns-Manville Packings—Carbic Oxy-Acetylene Welding and Cutting Apparatus, Etc.

IN OUR NEW DREADNAUGHT Straight Shot Pump, illustrated below, the fluid passages come up on the outside of the mud chamber, and the mud moves along in almost a straight line. This naturally makes for greater efficiency.

Each valve cap is independent, and bolted solidly down at four points.

Many other things have been done to make this new pump the true DREADNAUGHT of the industry. It is so designed and arranged that the smallest leak or other imperfection in the castings would show up during factory tests. You may be absolutely sure that the DREADNAUGHT Straight Shot Pump you buy at the Frick-Reid Store in your field is a perfect pump, capable of doing extraordinarily hard work over a long period of time.



Brothers, Salute L. R. Queen!

Another Member of the Ever-Growing "Success-in-One-Run" Fishing Club

L. R. Queen is now a full-fledged member of the Success-in-One-Run Fishing Club. He has experienced the grand and glorious feeling of getting his fish on the first run of the fishing tool.

Devil's Steel Hand

It happened at Torrance. There, as Superintendent of the Petroleum Securities Co., Queen faced the problem of fishing out a set of Wilson & Willard Drill Pipe Tong Jaws that had fallen 2410 feet to the bottom of the hole.

Being experienced in the game, Queen used a Devil's Steel Hand. On the *first run* the hole was clean.

The official tools of the Success-in-One-Run Club are, of course, the

DEVIL'S STEEL HAND
and
DEVIL'S PITCHFORK

The records that they are making every day, in difficult as well as simple jobs, make them without question the most efficient tools of this class ever devised. If you haven't got them when your next fishing job comes up, or don't take steps to get them, you are simply missing the best chance you have for quick and positive results. Write us to tell you more about these record breakers.

BROWN
WELDING and MACHINE COMPANY

Breckenridge, Texas
Rental Branch: 310 E. Third St., Tulsa

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HELIUM SOURCES AND EXTRACTION PROCESS

(Continued from Page 20)

Butler County, Kansas, the Augusta Field, produces gas from three zones; a sand ranging from 450 to 650 feet, and analyzing about 1.2 per cent helium, from a sand occurring 1,200 to 1,400 feet and analyzing about 1.03 to 1.14 per cent helium and from a sand about 1,500 feet which carries only about .43 per cent helium. The shallow sands in this field have a low rock pressure and are producing only about 400,000 cubic feet of gas per day. The deep sand has a rock pressure of about 100 pounds per square inch and is capable of producing about 2,000,000 feet of gas per day.

3. The Dexter and Otto fields in Cowley County, Kansas, is the district in which Cady and McFarland first discovered helium. The wells in this district at present are producing only a few thousand cubic feet of gas per day, but the gas analyzes about 1.84 per cent helium. Gas in this district is produced from sands at a level of about 300 to 350 feet. In the area near Otto the gas occurs at about 1,100 to 1,400 feet, has a production of 3,000,000 to 4,000,000 feet per day and carries from .9 per cent to 1.9 per cent helium.

4. The Rogers Pool, in the Sedan district, Chautauqua County, Kansas, has about 20 wells producing from a sand about 350 to 860 feet deep. The rock pressure in 1918 was about 38 pounds and the combined open flow of all wells about 6,000,000 feet per day. The gas in this pool anyalzes on an average about .96 per cent helium.

Outside of the Rogers Pool the area around Sedan contains a number of gas wells with a high helium content, but they are not at present very productive of gas; but it is possible several wells could be drilled in this locality that would produce from 2,000,000 to 3,000,000 feet of gas per day.

There are other minor fields in both Kansas and Oklahoma ranging in helium content up to about 1 per cent of the gas, but these fields are either poor producers or have not been developed. Some of the gases produced in the Mid-Continent region are "Wind Gases" containing such a high percentage of nitrogen and low percentage of combustibles as to render them non-inflammable.

Appalachian Region

In the Appalachian region, the only helium bearing gas of any importance is the gas from the Vinton County Field of Ohio. This field is about 60 miles south of Columbus and contains about 200 wells producing around 75,000,000 feet of gas per day. This field produces gas from two levels, 1,700 to 2,400 and from the Berea sands at a much shallower depth. Vinton County gas carries about .40 per cent of helium. More than 275,000 feet of helium goes to waste every day from this field. The natural gases of Pennsylvania and West Virginia carry only traces of helium.

Gas containing from a few hundredths of 1 per cent to about 1.5 per cent helium has been found in the Rocky Mountain region. The most important field in this region is a field near Salt Lake City, Utah, underlying 7,000 acres of Government land which was recently set aside as a helium reserve by an executive order issued by the President. The gas from this field carries about 1.34 per cent helium and about 28.24 per cent carbon dioxide. The rock pressure is almost 900 pounds per square inch.

Supply Enormous

It can be seen by the foregoing data that the total available supply of helium in the United States is enormous. Rogers estimated in 1918 that Mid-Continent and North Texas fields alone were capable of producing over 300,000 feet of helium per day for two to three years or a total of over 3,000,000,000 feet of helium. At that time the Nocona Field had not been discovered. It seems safe to assume that this field alone will produce more than 1,000,000,000 feet of helium.

The United States Navy through the diplomatic service is constantly on the lookout for sources of helium in every country, but so far no other country excepting Canada seems to possess sources of helium extensive enough to make this gas generally available for airships. Samples of natural gas from Mexico, Japan, Persia, Transylvania, South America (Peru and Trinidad), and other countries have been analyzed, but have shown only a trace of helium. It has already been shown that other sources of helium before mentioned are not of any importance, because there is no known method of increasing the evolution of gas from thermal springs, Soffiones, Fumaroles, etc.

Value of Helium

The great value of helium as an areonautical gas is due first to its low specific gravity .168 referred to air as 11 pounds per 1,000 feet, and second, to its chemical inertness, it having resisted every attempt to make it combine chemically with any other substance and no substance has been found which holds helium in a chemical combination. It is true that helium occurs in minerals, but it has been proven that such an association is only a mechanical one, that the helium is held imprisoned in miscroscopic cavities in the crystalline structure of the mineral, despite the fact that the amount of helium and other gases so held by such minerals as Uraninite is enough to product within the mineral a pressure of over 200 atmospheres or 3,000 pounds per square inch. In support of the view that helium is held mechanically, it has been found that the helium can be completely liberated from such minerals by finely pulverizing.

Helium is only slightly soluble in water, its maximum solubility being reached at about 10°C.

Difficult to Liquefy

Helium is the most difficult liquefiable of all the gases. After many attempts, however, it was liquefied by Kammerlingh Onnes at the University of Leyden, Holland, in 1908. In order to liquefy helium it was found necessary to first cool the gas in liquid hydrogen, and then bring the temperature down to the liquefication point by expanding, thus utilizing the Joule-Thomas effect. Since 1908 Onnes has repeatedly liquefied helium as a regular routine in his low temperature investigations. Professor McLennan of the University of Toronto is said to have succeeded in liquefying helium early in 1923, this being the first time helium has been liquefied on this side of the Atlantic.

Liquid helium, next to liquid hydrogen, is the lightest known liquid. Its density at its boiling point is 0.145 grams per cubic centimeter, that is, its weight is only about one-seventh the weight of an equal volume of water, only a little more than one pound per gallon.

Helium has not been obtained in the solid state. The principal physical properties of helium are: Mol. Wt. 4.008; Specific Gravity 0.1381 (Air-1) Wt. grams per liter 0.1785. Pounds per cubic foot 0.01115; volume of 1 gram .5602 c.c.; volume of 1 pound 90.6 cubic feet; Specific heat const. pressure 1.2496 cal per gram. constant volume 0.756; Ratio of specific heats 1.665; Solubility in water 1.487 c. c. per 100 c.c. of water; Thermal conductivity 0.000344; Critical temperature -267.88°C; Critical pressure 2.3 atmospheres; Boiling point—267°C; volume of gas obtained by evaporating 1 cubic foot of liquid 815.4 cubic feet.

Freed from Minerals

Before attempts were made to extract helium from natural gas, it was prepared in small quantities from the rare earth minerals before mentioned.

Elimination of helium from these minerals may be effected by heating the mineral to redness in an iron or porcelain tube that has been evacuated or freed from air by displacement with carbon dioxide. At 800°C. only 50 per cent of the helium can be obtained by this method even after heating for 24 hours, while if heated to 1,000 to 1,200°C. all the helium is obtained in a short time.

Another method of obtaining helium from minerals is to dissolve the mineral in dilute sulphuric acid, if it is soluble in this reagent, and collect the helium evolved. In this way about one-tenth of

Jobber uses PARCO straight in his Aeroplanes
"I have two aeroplanes," writes Arthur Land, Land Petroleum Co., Warrensburg, Mo. "I am going to fly over to Bunceton to help the Democrats open up their campaign. Am using PARCO Navy Gasoline in these planes, straight. How is that? It has been giving good service."
PARCO keeps on surprising people by its exceptional power and quality.
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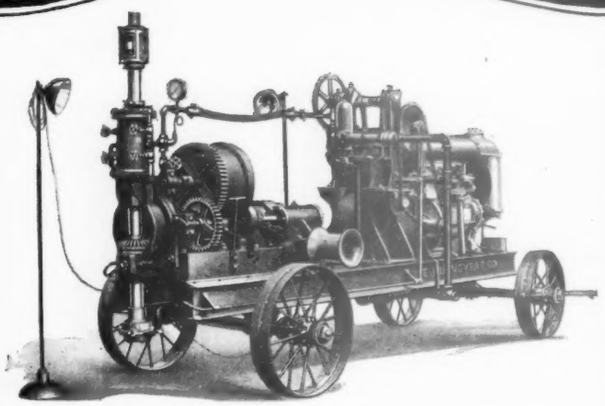

A Portable Diamond Core Drill for Determining Oil Structure

A very important item in the cost of any oil drilling campaign is the time and expense involved in moving from hole to hole and in setting up the equipment for operation.

The E. J. Longyear Company, which is constantly studying how these costs may be reduced, has assembled a complete portable gasoline diamond drill unit mounted on a steel truck ready for drilling.

In addition to the feature of portability of this new Longyear hook-up—which reduces time spent in moving to a minimum—this assembly is composed of three standardized proven units—the Longyear 2 N diamond drill—Fordson Gas Engine and Goulds pump which are fully described in the specifications.

This new outfit is on the job and working successfully for the Midwest Refining Company.

A request for further information will be welcome and you will not be obligated in any way.

SPECIFICATIONS

DIAMOND DRILL: — Longyear No. 2 N Model. Capacity: 1000 ft. "N" Core (2 in.) or 2000 ft. "A" Core (1⅛ in.) Hydraulic Feed: Either 12 in. or 24 in. Spool Hoist or cathead attached for driving standpipe.

ENGINE: Fordson Gasoline with Governor control. Speeds: Three obtainable through the transmission. Clutch: Clutch on motor and separate clutches on both pump and drill give greater flexibility in operation. Electric generator with three lights for night work. Control Levers: Easily reached by operator.

PUMP: Goulds triplex 3x4 heavy duty pump with by-pass control and relief valve.

Optional equipment consists of caterpillar tread for heavy ground and an enclosure of waterproof canvas curtains on steel frames.

[OTHER LONGYEAR activities include manufacture of diamond drill supplies, contract diamond core drilling, shaft sinking and mine development]

E. J. Longyear Company
Minneapolis, Minnesota, U.S.A.

a cubic foot of helium can be obtained from a pound of Thorianite. The gases as evolved from these minerals consist besides helium of CO_2, N_2AR, 0_2 and other gases. The helium can be separated from the other gases by the Dewar process mentioned below.

These methods of producing helium are expensive, the helium costing more than $2,000 per cubic foot, if the mineral is worked for the helium alone. However, in the manufacture of the Welsbach incandescent gas mantels, large quantities of Thorium bearing minerals are worked up from which the helium can be collected as a by-product. The Welshbach Co. of Camden, N. Y., in this way obtained considerable quantities of helium as a by-product of their gas mantle manufacture. A total of not more than 100 to 150 feet of helium, however, had been collected up till the spring of 1918, at which time the Linde Air Products Co.'s experimental plant at Fort Worth, Tex., began producing helium on a semi-commercial scale.

Dewar Process

About 1904 a process was patented in Germany by Sir James Dewar for the recovery of helium from atmospheric air and other helium bearing gases by absorbing all the other constituents in activated cocoanut charcoal reduced to the temperature of liquid air. By this means helium free from all the other gases except neon could be obtained by the first treatment and by retreating in the same way, that is, by passing the helium-neon mixture over a fresh quantity of charcoal at liquid air temperature the neon is taken up and held in the charcoal and the helium obtained practically pure. This method, although giving a pure gas, can never become commercially successful due to the fact that over 250,000 cubic feet of air would have to be processed to obtain 1 foot of helium.

The Dewar process can be used for obtaining helium in small quantities from the helium bearing gases. The apparatus is very simple, it being necessary to have only a tube or bulb, either of glass or metal filled with 200 to 500 c.c. of activated charcoal and immersed in a bath of liquid air; the helium bearing gas is passed through this tube, all the gases with the exception of helium being absorbed. The helium passes out and is collected in a receiver by displacement of water or mercury.

Extracting Commercially

At the time of the first Zeppelin raids over London, the British realized that had the Zeppelins been filled with a non-inflammable gas instead of hydrogen, it would have been impossible to destroy them and England would have found itself in very severe straits. On that account the Government started its investigators working on the feasibility of employing a non-inflammable gas to inflate their own rigid airships then being built. They tried out heated air and also such gases as ammonia, which has a lifting power of about 50 per cent that of hydrogen. These investigations, however, indicated that no non-inflammable gas then known was a possibility with the exception of helium, and the literature on helium showed that practically all the known resources were within the limits of the United States, which was at that time not a combatant.

In this connection the British investigators were well aware of the work of Cady and McFarland on the natural gases of Kansas, since this work was widely published in the Chemical Literature. These investigators previous to 1917 had carried on their engineering work to the extent of calculating the cost of the separation of helium from natural gas, and estimated it to be about $70 per 1,000 feet.

As soon as the United States became one of the combatant nations and was allied with Great Britain, the research problems connected with the prosecution of the war, then in the hands of the British Government, were communicated to the Council of National Defense of the United States, and the possibility of procuring helium from natural gas was one of these. This problem, with all the data and plans of the helium investigators as it then stood, was referred by the Council of National Defense, to the United States Bureau of Mines as the logical agency in this country for undertaking such an investigation.

War Time Experiments

Colonel Burrell and Dr. R. B. Moore of the Bureau of Mines then approached the joint Army and Navy Airship Board, with a proposal for obtaining helium from the natural gases of Kansas and Texas, and asked for an appropriation for undertking the commercial extraction of helium from these gases. Funds were allotted in July, 1917, in equal amounts by the Army and Navy to the Bureau of Mines, this bureau acting as agents for the joint Army and Navy Airship Board for handling the finances and making the necessary contracts.

Pursuant to the agreement the Bureau of Mines and the joint Army and Navy Board, agreements were made and contracts entered into between the Government and the Linde Air Products Co. of New York and the Air Reduction Co. of New York. Both these concerns are large producers of oxygen, using methods requiring the liquefaction and distillation of the air. These two companies immediately made changes in the design of their commercial oxygen apparatus necessary to recover the helium and started the erection of small experimental plants at North Fort Worth, Tex. The Bureau of Mines began the erection of a full scale commercial plant at Petrolia, utlizing the Jeffreys-Norton process which had never been tried out even for the production of liquid air.

In this case no small scale experimental plant was erected to try out the process. These various plants are known as Plant No. 1. (The Linde Process), Plant No. 2, (The Claude Process Air Reduction Co.), and Plant No. 3, at Petrolia, (The Jeffreys-Norton Process). All these various plants were constructed by the Construction Quartermasters Corps of the Army, The Linde Air Products Co., the Air Reduction Co., and the Bureau of Mines installing the extraction equipments for Plants Nos. 1, 2, and 3, respectively.

Helium Board Formed

A joint Army and Navy Board known as the Helium Board was in the meantime formed to look after the production of helium and every effort was made by this board to rush the experimental work on the three processes. The Linde Air Products Co. began operation of its plant (Plant No. 1) in March, 1918, and by July, 1918, was producing helium, of 70 per cent purity. The Air Reduction Co. (Plant No. 2) began operation in May, 1918, and produced helium of abont 60 per cent purity. The operation of this plant, however, was not as successful as Plant No. 1, while Plant No. 3, designed and constructed by the Bureau of Mines, did not begin operation until 1920, and was never able to produce helium successfully due to several causes; among them, the basic design of the plant was wrong and the process itself was not very well understood even by the inventors.

The Helium Board, therefore, decided to use the process developed by the Linde Air Products Co. and to build a plant at Fort Worth, Tex., capable of producing 40,000 feet of helium per day. Accordingly, early in 1919 funds were allotted in equal amounts by the Army and Navy to the joint Army and Navy Helium Board for building this commercial Helium Production Plant and the Naval Bureau of Yards and Docks was designated by that board to undertake the construction of the buildings and installation of machinery and the laying of a 104-mile pipe line from Petrolia to Fort Worth, Tex. The actual helium extraction apparatus, such as liquefiers, interchangers, forecoolers, and still columns were designed, built, and installed by the Linde Air Products Co. as agents for the Navy Department.

New Production Contract

The Navy Department, which handles the work for the Army and Navy Helium Board, enters into a contract each year with the Linde Air Products Co. whereby that company operates the Helium Production Plant as operating engineers for a certain fixed fee, the Army and

EVERY OIL FIELD NEED

Any and every need of the Contractor, Producer, Pipe Line Operator, and Refiner will be found between the covers of the big CONTINENTAL Catalog.

When you buy from CONTINENTAL you have the manufacturer's guarantee plus *our* guarantee of superiority. Our customers find it literally true that

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CONTINENTAL

Rendering, year after year, the same painstaking service to the oil industry thruout America

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WARREN, OHIO

Navy jointly paying all operating costs. With this arrangement the new production plant began operation early in 1921 and has operated continuously except for a period of 10 months (from June 1921 to October, 1922) on account of lack of funds. Owing to an inadequate natural gas supply, the Production Plant has never, except for four periods of approximately one month each, been able to operate at full capacity. Under these adverse conditions the average cost of helium has been approximately $78 per 1,000 feet, the lowest cost to date being $61.

Credit for pushing the Helium project to a successful conclusion during the experiment period is due largely to G. O. Carter, a former Naval officer who was at that time a consulting engineer for the Navy Bureau of Engineering.

All the experimental work, the design of equipment, and the development of this process were accomplished by the Linde Air Products Co.'s engineers, working independently and without any technical aid from Government agencies. For this reason the process remains today the property of the Linde Company and details of the process are rigidly guarded trade secrets.

According to information that has been made public by the Linde Air Products Co., the following is the method of extracting helium by this process:

Process of Extraction

Helium is extracted from the natural gas by effecting the liquefaction of each of the other gases, except carbon dioxide, contained with helium in the natural gas. This liquefaction is effected by the process developed by the Linde Air Products Co. in their experimentation at the Helium Experimental Plant No. 1 at North Fort Worth.

This process consists essentially of the compression of the incoming gas to a high pressure, the removal of the heat of compression by a circulation of cold water, the progressive cooling resulting from the expansion valve to a low pressure, and the application of the cold waste gases and closed external refrigerating cycles of nitrogen and carbon dioxide as refrigerating media. The hydrocarbons, oxygen and nitrogen, condense in the order named and the helium is drawn off. The condensed gases are vaporized back into the natural gas supply system of Fort Worth and Dallas.

INCREASE VACUUM

Representatives of the operating companies in the Burbank Field in Oklahoma met with J. George Wright, superintendent of the Osage Indian Agency, and M. J. Kirwan, director of the experiment station, United States Bureau of Mines, in the rooms of the Mid-Continent Oil & Gas Association, Tulsa, and made arrangements to increase the vacuum on the wells in that field. An allowed for a maximum shrdlu shrdlu agreement between the operators had allowed for a maximum amount of 5 inches of vacuum to be placed on any well. The new agreement will permit a maximum of 10 inches on any well.

The agreement was made effective as of November 1, 1924, and will extend over a period of 18 months, according to the resolution adopted by the operators.

WYOMING CARBON BLACK LAW

CASPER, Wyo., Nov. 15.—Decision in the case of Wiley and others against the State of Wyoming concerning the operation of the carbon black law is expected soon, following hearing of the case here. The law prohibits use of gas for making carbon black within 10 miles of an incorporated town. The suit claims the operation of the law has prevented the marketing of gas production from leases near Thermopolis and is discriminatory legislation. The case has been watched with considerable interest by carbon black manufacturers and owners of gas production.

TO UTILIZE MAXIMUM OF DOMINGUEZ, CAL., GAS

DOMINGUEZ, Cal., Nov. 15.—With completion of the installation of its last three units for its compressor plant, the Midway Gas Co. soon will be utilizing the maximum capacity of natural gas in the Dominguez Field. These units—Nos. 16, 17 and 18—include installation of 160-h.p. natural gas engines, giving the company 2,000 horse power at its compressor plant which is pumping gas to Los Angeles and other points.

When this work was started officials stated the program meant doubling the capacity—then 20,000,000 feet daily. The company now is in a position to take the maximum quantity of gas, or 40,000,000 feet.

The Midway is working in conjunction with State officials and oil operators on a definite conservation program in the Dominguez Field, to avoid, so far as possible, the great wastage which occurred in the three big fields of Los Angeles basin. The units just completed by the Midway are but 18 out of 47 similar units the company has or is installing in and around Los Angeles this year.

POSSIBLE GAS FIELD IN STEPHENS COUNTY

ARDMORE, Okla., Nov. 15.—Indications for the possible opening of a new gas field in Stephens County are apparent on the Shoptaw and others' wildcat in the center of the south half of the north half of Section 4-1s-7w, which topped a sand that revealed a core barrel showing of gas at 2,790 feet and is cementing casing at that depth. The test was drilled with the rotary tools. Its location is only 300 yards from the east limits of the city of Duncan and in a new territory. The test had a number of good showings, all of which were gas, and the best of which were found at around 1,400, 1,800 and 2,200 feet.

The Clark-Cowden interests are drilling deeper in No. 1 on the Tettleton farm, in the southeast of the northwest of the southwest quarter of Section 9-1s-9w, following failure to exhaust the water, which was showing with the gas. The test, which opened a new field in Cotton County, gauged 5,600,000 feet of gas and tested 630 pounds rock pressure.

RESTRICTION REMOVED

F. E. Bernsen, vice president of the Lucey Manufacturing Corp., reports that on behalf of contractors and operators shipping rotary outfits from field to field via railway transportation, the matter of classification has been taken up with the Western Classification Committee, which is responsible for the classification of railway shipments and that effective January 1, 1925, the classification committee has agreed to remove the limitations restricting more than one boiler being shipped with car loads of oil well supplies.

In the past operators and contractors shipping rotary outfits were allowed only one boiler with a shipment. The one or more additional boilers were charged a less than car load rate. The new ruling will permit one, two or three boilers being included in an outfit, all of which will bear the same car load freight rate.

SOUTH VERNON PIPE LINE

WICHITA FALLS, Tex., Nov. 15—The Waggoner Refining Co., which operates a refinery west of Electra has about completed a pipe line connecting its plant with the new South Vernon Pool of Wilbarger County. The line is the first to be completed into the pool from Wichita County. Other lines under construction are those of the Sinclair Pipe Line Co., Humble Oil & Refining Co., and the Texas Pipe Line Co. The Waggoner Co. has been running crude to storage pending the completion of the pipe line.

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No. 28 Star Drills Deep Test Well 3489 Feet in Kansas

Partial Log of Deep Test Drilled for Equity Oil & Gas Co.

Woodson County, Kansas, Soloman Farm, Section 29, Township 26, Range 17. Promoter, E. S. Mason. Contractors, Booe & Stevenson. Drillers, H. Stevenson and Van Stevenson. Tool Dressers, Ray Yaege, Earl Hedden, L. Stevenson. 12″ casing at 40 feet, 10″ casing at 500 feet, 8″ casing at 1,200 feet, 6⅝″ casing at 2,355 feet.

Kind of Rock	Depth
Miss. lime	1200
Shale break	1216
Shale	1220
Lime	1426
Shale break	1454
Water sand	1464
Lime, various colors	1864
Brown sandy lime. Showing of oil	1875
Sandy lime	1878
Salt water	1883
Lime	1932
Oil sand. Good oil showing	2030
Water sand	2040
Oil sand. Showing of oil	2116
Lime	2122
Sandy lime	2130
Oil sand. Showing of oil	2218
Sand	2227
Lime	2248
Broken lime	2258
Gray granite	2282
Red granite	2332
Blue shale	2341
Red granite	2343
Blue shale	2354
Red granite	2365

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Kind of Rock	Depth
Black shale	2473
Salt water	2600
Red granite	2602
Brown sandy granite. Showing of oil	2831
Red granite	2871
Black shale	2877
Red & White granite	2880
Red granite	2962
Gray granite	3130
Brown oil sand Good showing of oil	3180
Gray sandy granite	3188
Red granite	3200
Gray granite	3300
Brown oil sand Good oil showing	3314
Brown granite	3319
Red granite	3462
Brown oil sand Showing of oil	3468
Red sandy granite	3470
	3489

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Export Office, 2 Rector St. New York City

INSTITUTE TO ELECT SOME NEW DIRECTORS

(Continued from Page 24)

The procedure worked out for the election of directors is designed to give the entire industry voice in the choices made. This is largely accomplished through the board of councillors of the institute which constitutes a committee of nomination for candidates for membership on the board of directors. The board of councillors is elected annually from the membership of the institute by the board of directors. The members of the board of councillors are representative of the various groups into which the board of directors are divided, and now number over 500, although the number of members is not arbitrary and is within the discretion of the board of directors.

These councillors, acting as a committee on nominations, receive each year at a time 30 days prior to the annual meeting, a notice from the general secretary of the institute, requesting them to submit to him in writing suggested candidates for nomination as director or directors to represent the specified group. Not less than 10 days before the annual meeting, the general secretary sends to all councillors a list of the suggested candidates whose names have been submitted to him by various councillors, indicating the group or groups which it has been proposed that each candidate shall be nominated to represent.

Manner of Election

The board of councillors then meets in executive session on the opening day of the annual meeting of the institute, and after the reading of the list of suggested candidates, proceeds to make nominations for the requisite number of directors to be elected, in the following manner: The councillors divide themselves into their various groups. Each group determines upon the candidate or candidates to represent it, with whatever subgroupings the councillors present determine is necessary in order that the particular interests of that group of the industry may be adequately represented on the board of directors. Each group then reports its candidate or candidates to the general meeting of the board of councillors which thereupon nominates the required number of candidates, which nominations are prepared for presentation at the annual meeting. The by-laws also provide that at the annual meeting nominations for directors representing all or any of the groups or subgroups, in addition to those recommended by the nominating committee, may be made by any member of the institute provided the nomination shall be seconded and concurred in by at least 25 additional members entitled to vote. Directors duly nominated are then elected by the vote of the institute membership at the annual meeting.

Directors whose terms expire and the membership of the board of councillors in the various groups, follow:

Production Group

Pacific coast (production) group: The terms of office of L. P. St. Clair, F. H. Hillman and Dave S. Ewing expire in 1924. Three nominations to be made by councillors at next annual meeting.

Councillors

(Nominating Committee for this subgroup)
Jacques Weinberger, California Petroleum Corp., Los Angeles.
M. E. Lombardi, Pacific Oil Co., San Francisco.
John McPeak, Union Oil Co. of California, Los Angeles.
J. Leslie Barneson, General Petroleum Corp., Los Angeles.
M. H. Whittier, Hondo Oil Co., Los Angeles.
Roy N. Bishop, Universal Oil Co., San Francisco.
R. A. Broomfield, Potter Oil Co. of California, Los Angeles.
P. G. Williams, Associated Oil Co., San Francisco.
W. L. Valentine, Fullerton Oil Co., South Pasadena.
M. L. McCray, Salvia Oil Co., Los Angeles.
S. A. Gray, J. E. Gray Oil Co., Bakersfield.
W. C. McDuffie, Shell Co. of California, Los Angeles.
C. J. Berry, Ethel D. Co., San Francisco.
A. C. Dierkx, Honolulu Consolidated Oil Co., Los Angeles.
E. L. Tompkins, American Oilfields Co., Los Angeles.
F. C. Ripley, Chanslor-Canfield Midway Oil Co., Los Angeles.
S. A. Guiberson, Los Angeles.
L. B. Little, Standard Oil Co. of California, Bakersfield.
Carl H. Beal, Marland Oil Co. of California, San Francisco.
C. M. Fuller, Richfield Oil Co., Los Angeles.
H. H. Maxson, California Petroleum Exchange, Los Angeles.
James F. Nugent, Angeles Mission Oil Co., Long Beach.
A. G. Peasley, Amalgamated Oil Co., Los Angeles.

Rocky Mountain (production) group: No nominations to be made for this group in 1924.

Councillors

(Nominating committee for this subgroup)
Max W. Ball, Ute Petroleum Co., Denver.
Wilbur T. Funk, Carter Oil Co., Denver.
S. H. Keoughan, Mutual Oil Co., Denver.
John McFadyen, Ohio Oil Co., Casper.
C. B. Richardson, Western Exploration Oil Co., Casper.
H. D. Curtis, Empire State Oil Co., Thermopolis.
H. C. Bretschneider, Mid-Northern Oil Co., Billings.
R. S. Ellison, Midwest Refining Co., Denver.
Benj. M. Howe, Atlas Oil Co., Great Falls, Mont.
J. L. Havice, Kasoming Oil Co., Cheyenne.
James Owen, Salt Creek Consolidated Oil Co., Denver.
W. H. Ferguson, Continental Oil Producing Co., Denver.
C. W. Burdick, Franco-Wyoming Oil Co., Cheyenne.
R. G. Taylor, Marine Oil Co., Denver.
Andrew D. Aitken, Midwest Oil Co., Denver.
Roderick N. Matson, Consolidated Royalty Oil Co., Cheyenne.
Fred W. Freeman, The Texas Co., Denver.

Central United States (production) group: The term of office of W. S. Farish expires in 1924. One nomination to be made at next annual meeting.

Councillors

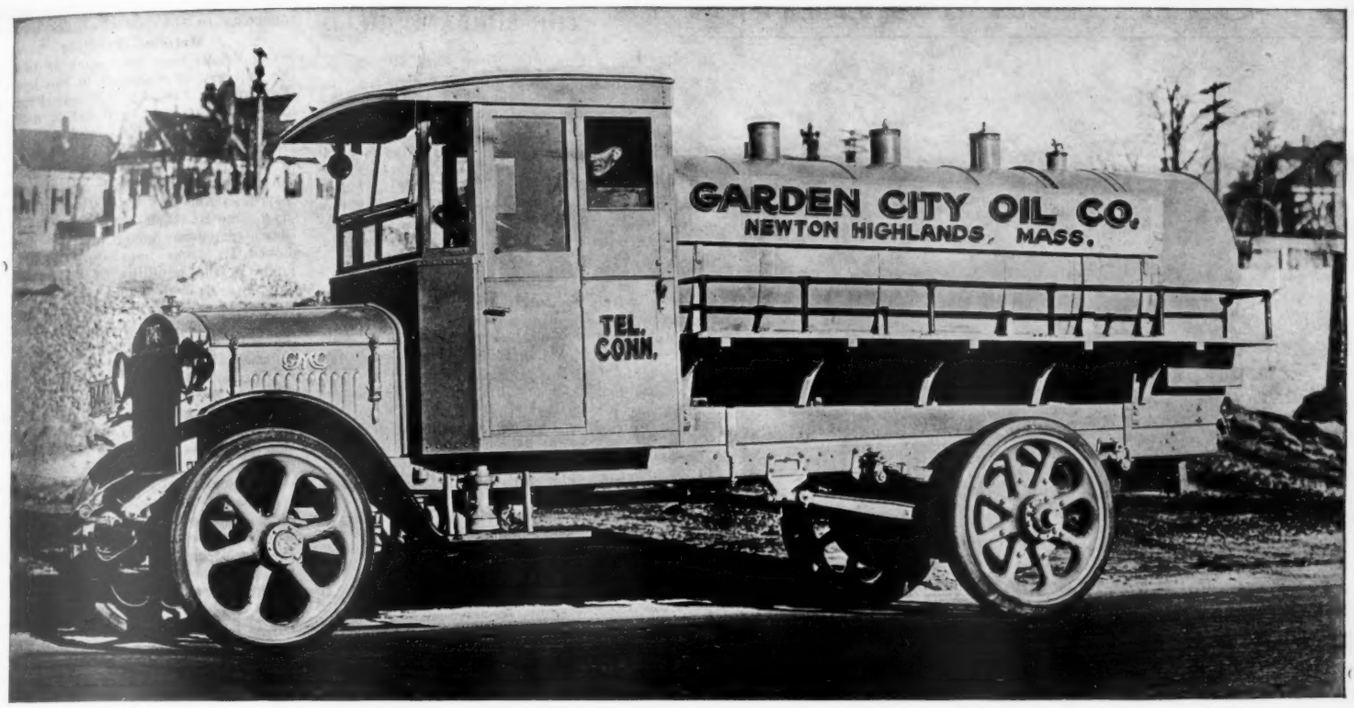
(Nominating committee for this subgroup.)
J. F. Darby, Linde & Darby, Tulsa.
Alfred J. Diescher, Emerald Oil Co., Winfield, Kans.
G. O. Moody, Cosden & Co., Tulsa.
A. P. Davis, Sun Oil Co., Dallas.
Dana H. Kelsey, Prairie Oil & Gas Co., Independence.
James A. Veasey, Carter Oil Co., Tulsa.
C. K. Clarke, Standard Oil Co. of Louisiana, Shreveport.
J. A. Anderson, Humble Oil & Refining Co., Houston.
J. Cook Wilson, Wilson-Broach Co., Beaumont.
F. R. Schneider, Simms Oil Co., Dallas.
H. R. Noble, Shreveport Producers & Refiners Corp., Shreveport.
James D. Williams, Caddo Central Oil & Refining Co., Shreveport.
C. A. Braley, Sinclair Consolidated Oil Corp., Kansas City.
Ewing Halsell, Halsell & Sons Oil Co., Vinita.
William Bell, Bell Brothers, Robinson, Ill.
E. H. Blum, Atlantic Oil Producing Co., Dallas.
E. R. Riggs, Sullivan, Ind.
Carl Dresser, Dresser Oil Co., Tulsa.
T. B. Hoffer, Hoffer Oil Co., Fort Worth.
J. S. Griffin, Griffin Producing Co., Tulsa.
H. V. Foster, Bartlesville.
Frank P. Phillips, Phillips Petroleum Corp., Bartlesville.
F. Godber, Roxana Petroleum Corp., St. Louis.
John M. Lovejoy, Amerada Petroleum Corp., Tulsa.
E. I. Hanlon, Chestnut & Smith Corp., Tulsa.
Harry H. Smith, Mid-Continent Oil & Gas Association, Tulsa.
J. A. Chapman, McMan Oil & Gas Co., Tulsa.
C. E. Hane, Tidal Oil Co., Tulsa.
Frank Cullinan, Papoose Oil Co., Dallas.
Arthur G. Denman, Denman Brothers, Sedan, Kans.
Water S. Markham, J. H. Markham, Jr., Tulsa.
W. G. Skelly, Skelly Oil Co., Tulsa.
H. L. Mourer, Peer Oil Corp., Tulsa.
C. R. Minor, Gulf Refining Co. of Louisiana, Shreveport.
H. L. Montgomery, Empire Gas & Fuel Co., Bartlesville.
E. W. Marland, Marland Oil Co., Ponca City.
W. B. Pyron, Gulf Production Co., Fort Worth.
Henry McGraw, Gypsy Oil Co., Tulsa.
R. D. Rood, Rood Oil Corp., Bartlesville.
J. K. Hughes, J. K. Hughes Oil Co., Mexia.
J. A. Vickers, Vickers Petroleum Co., Wichita.
C. J. Wrightsman, Wrightsman Petroleum Co., Tulsa.
J. R. Penn, Texas Pacific Coal & Oil Co., Fort Worth.
R. F. MacArthur, Barnsdall Oil Co., Tulsa.
F. V. Faulkner, Magnolia Petroleum Corp., Dallas.
D. J. Moran, The Texas Co., Houston.
H. N. Cole, Pure Oil Co., Tulsa.
Clyde M. Bennett, Louisiana Oil Refining Corp., Shreveport.
Mills Bennett, Swiftsure Petroleum Co., Houston.
Harvey W. Gilbert, H. W. Gilbert Petroleum Co., Beaumont.

Eastern United States (production) group: The term of office of George W. Crawford expires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
L. B. Denning, Ohio Fuel Supply Co., Pittsburgh.
O. D. Donnell, Ohio Oil Co., Findlay.
E. J. Sadler, Standard Oil Co. of New Jersey, New York.
W. J. Brundred, Brundred Oil Corp., Oil City.
L. W. Young, Jr., South Penn Oil Co., Pittsburgh.
Thomas H. Kennedy, William C. Kennedy Co., Bradford.
Arthur F. Corwin, Carter Oil Co., New York.
John Davidson, Jervis Oil Co., Charleston, W. Va.

(Continued on Page 118)



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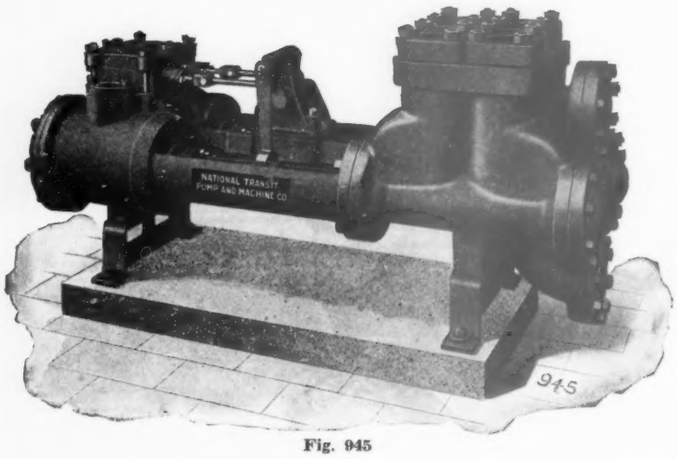

Fig. 945

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When a new field comes in, when an old field is extended, or most any place where there is a lot of oil to handle quickly, there is no pump more satisfactory than a—

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[THE SUPER-FIELD PUMP]

Bulletin 105-A on Request

NATIONAL TRANSIT PUMP & MACHINE CO.

Oil City, Pa.

District Offices: New York Philadelphia Pittsburgh Cleveland Tulsa Houston Denver

CRUDE PRODUCTION IN THE BURBANK FIELD

(Continued from Page 60)

is 100 quarts of liquid nitroglycerin run into the well in shells 4 inches in diameter and 8 feet long, each holding 20 quarts of glycerin. The shot is discharged by dropping a jack made of sand and dynamite incased in a tin container to which is attached a can and fuse. The wells respond very nicely to the shot and usually flow over the top of the derrick and many excellent pictures have been taken of these flowing wells.

Cleaning Out

After shooting there is a great amount of oil and sand that caves into the hole which is cleaned out by bailing and sand pumping. When the sand ceases to cave what is known as the Jones Oil Well Reamer is run. This reamer is shaped like a large war club, about 2½ feet long, 5 inches in diameter at the large or lower end and about 3 inches at the top, and is covered with burrs that extend about ½-inch from the body of the reamer. This club has a swivel connection on top threaded to screw onto the bottom of the tubing. The reamer is run to the bottom of the well on a string of tubing which is then locked to a turntable set over the hole. As the tubing revolves the reamer, being heavy on the lower end, swings outward and cuts off all protruding points of sand in the shot hole. As the reamer cuts away the sand the tubing is raised and when finished there is an oil pocket in the sand from 4 to 4½ feet in diameter extending the entire depth of the shot hole.

The sand cut down by the reaming process is then removed with a sand pump and the well is ready to be tubed. It requires from eight to 10 days for reaming and from four to six days to remove the sand.

Pumping Equipment

Most of the companies have standardized on 2-inch 4½-lb. upset end steel tubing and ⅝-inch sucker rods in this field. However, in some instances where there is considerable water to be pumped ¾-inch rods are used.

The life of flowing wells is prolonged by the use of specially designed packers run on tubing and set at various depths, depending on the volume and pressure of the gas in the well. These packers are so designed as to permit the gas to pass through the body of the packer while it is being run or pulled. Some of these packers are so devised that the well can be agitated or pumped with rods.

Lease Organization

The lease organization does not differ materially from that in other fields, although the Burbank Field is operated entirely in 160-acre units. A district superintendent is in charge of operations for each company and has under him lease foremen, each in direct charge of a 160-acre tract during the time of development and flush production. After the production declines sufficiently a foreman is generally given charge of two 160-acre tracts. Each foreman has his head roustabout, pumpers, and roustabouts, also, during the time of flush production an oil switcher, whose duty is to take care of oil at the tank battery and transfer the oil from flow tanks to the tank battery. The duties of the head roustabouts are to oversee the work of roustabouts, such as connection work, pulling and running tubing and rods in wells, also to keep men supplied with necessary tools and material. The pumpers' duties are to keep engines on pumping wells properly lubricated and regulated, test the oil at wells to determine b.s. percentage, thereby discovering whether or not the oil is being cut by worn cups or valves, check the pipe line gaugers' tickets and oil samples before the oil is delivered to the pipe line company, also, take care of boilers and steam engines at wells pumping by steam. Generally, during the time of flush production, when a large number of wells are pumping by steam, the pumper is assisted by a fireman who takes care of the boiler firing.

Each company usually has a cleaning out foreman who has complete charge of cleaning out tools and their operations, reporting to the district superintendent.

Material Handling

Conditions have been such as to allow the delivery of material to the heart of the Burbank Field by railroad. From unloading points the material is delivered to the leases by teams and trucks contracted to do this work. There is a man in each district whose duties are to check all material moved from lease to lease, instruct teams and trucks to do the work, keep time on them and make the necessary transfers covering the material moved. In stress times many records were made in the handling of material. One company unloaded and moved onto its leases 210 carloads of material in 18 days' time. The lease foreman receipts for all material moved on his lease and advises the man in charge of moving material or any material in large quantities he wants moved. Nearly every lease is assigned a light truck for moving tools and small material about the lease and to and from the warehouse where the surplus stock is carried.

Practically all of the older wells when they had ceased to flow even by the use of packers or various "flowing devices" were equipped to pump on the beam by the use of gas engines. It was generally felt that the wells were too deep to be pumped by means of a central power and jacks. The Phillips Petroleum Co. was the first producing company to install a pumping power in the Burbank Field to handle these 3,000-foot wells. And this method of pumping has proven so successful that most of the older leases are now so equipped. The powers used are of bandwheel type, the wheel being 24 feet in diameter, driven by a 40-h.p. gas engine. Usually large and heavy eccentrics give the wells a 24-inch stroke.

The pumping jacks are equipped with counter balance beam carrying sufficient weight to balance the wells, making them equivalent to 1,500-foot wells. In instances where the wells have to be pumped before the pumping power is installed they are pumped either with steam engine or temporarily installed gas engines. In many cases wells are swabbed until they are ready to be connected to the power.

In the northwest Kay County extension of the field, where considerable water must be handled, in order to obtain the maximum production, gas engines are set permanently to pump wells on beam which gives them a longer stroke than is possible with a pumping power.

Analysis and Characteristics

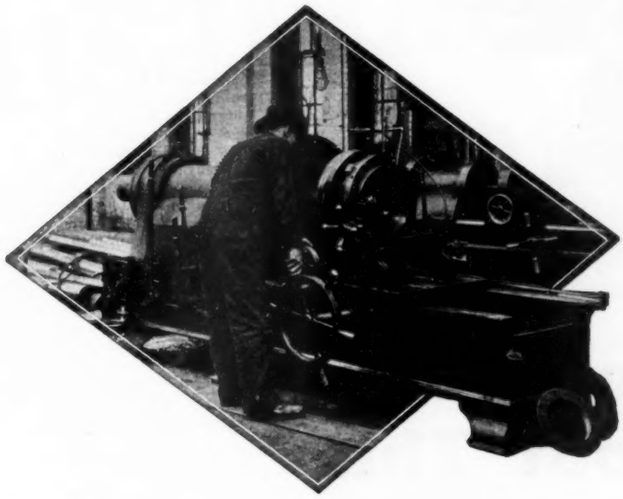
Throughout the various districts in the Burbank Field crude oil as produced at the wells, varies in gravity from 36 to 40 degrees A. P. I. The higher gravity oil is mainly produced in the north part of the field, and also in the northwest Kay County extension. A composite sample of oil obtained from 10 tracts showed the following analysis:

*40 feet of 20" 90 lb. 8 thread DBX casing.
750 feet of 16⅛" 70 lb. 8 thread ¾" taper DBX casing.
1,300 feet of 13⅛" 50 lb. 8 thread ¾" taper DBX casing.
1,600 feet of 10" 40 lb. 8 thread ¾" taper DBX casing.
2,300 feet of 8¼" 28 lb. 8 thread ¾" taper DBX casing.
2,750 feet of 6⅝" 24 lb. 10 thread 3/" taper DBX or Mid-Continent special casing.
† 300 feet of 5 3/16" 17 lb. 11½ thread ⅝" taper DBX casing.

*The amount of 20-inch used varies according to the amount necessary to shut off the surface water. The average of the Burbank Field is 40 feet.

†The 300 feet of 5 3/16-inch 17-pound casing is used as a liner, casing the hole between the bottom of the 6⅝-inch casing and the tpo of the sand. It is run after the well has been shot. The casing shoes used are all of the Texas pattern, which is an extra long and strong shoe.

Burbank crude, although containing a large percentage of paraffin, is usually classed as being a "naphthene base" oil. The crude, besides containing a reasonably large percentage of the lighter boiling hydrocarbons, may be refined into lubricating oils which possess excellent qualities. In fact, this crude is in great demand by manufacturers of high grade lubricating oils. In refining Burbank crude, it is common practice to prepare a "cylinder stock" from the still residue. This is possible, due to the low percentage of "carbon residue" existing in the



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As a result of this experience, the Jarecki Pipe Threading Machine has reached such a state of perfection that we can't help feeling proud about it.

More than 50% of the machines shipped last year were *repeat orders.* Companies like the New York Central, Pennsylvania and Chicago, Burlington & Quincy Railroads consider the Jarecki machine first when ordering new equipment. More convincing proof of their perfect operation would be hard to find.

The Jarecki Pipe Machine is compact, convenient and strong. The die head is designed for easy and rapid manipulation. The dies are milled from the best Vanadium Die Steel, threading one or two sizes as desired. Cut-off and reaming tools are attached to rear of die head.

Patent taper attachment is included when special or extra-long tapering or straight threads are to be cut.

In every detail of the Jarecki Pipe Threading Machine you will find that sturdy dependability that you naturally expect in the finished product of 40 years' experience. We will gladly give further information.

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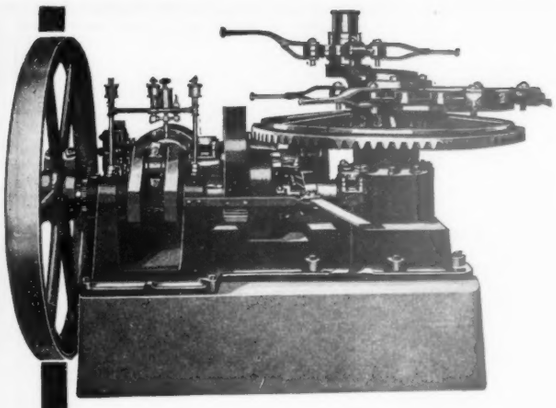
out foreman who has complete charge of

age of "carbon residue" existing in the



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still bottoms after removal of the lighter fractions and lubricating distillates.

Treating

In common with a great many other oil fields, the Burbank Field has more or less trouble with the so-called b.s. which, when present in amounts greater than 1 per cent, must be removed before the oil is accepted by the purchasing companies. This emulsion is composed mainly of a mixture of water, oil, amorphous wax, and inorganic silt or sand. As a general rule, each lease or tract has its own treating plant installations, rather than one central dehydrator. Where conditions permit, 2-inch oil lines from the wells are manifolded into a header and so arranged that the oil from each individual well may be circulated through the treating plant or run direct to stock depending upon the condition of the oil. This manifold arrangement permits continuous emulsion tests of the production from individual wells and thereby determines which production requires treatment. The treating plant proper contains installations for heating the emulsified production, methods of feeding chemicals into the cut oil, wash tanks and settling tanks. Due to the large percentage of volatile hydrocarbons in Burbank crude, it is not practical to attempt to dehydrate the emulsified oil by heating to very high temperatures, in which case, large evaporation and gravity losses would be involved.

The general practice of treating emulsified oil in the Burbank Field includes the use of a chemical known under the commercial name of "Tretolite." This chemical is introduced into the emulsified oil, by means of a lubricator adapted for the purpose, at some convenient point in the line between the well and heater. The mixture of emulsified oil and chemical is then heated by various methods to 125 degrees F. and then circulated through wash and settling tanks. The general process is continuous and as much as 3,000 bbls. of emulsified oil may be dehydrated daily through a single unit. This "Tretolite" process involves a chemical treatment of the crude oil emulsion, which, when handled properly, effects a complete separation of the water and foreign content from the oil. The introduction of this liquid chemical, which is obtained in steel drums of 50 gallon capacity, does not contain injurious ingredients which might tend to corrode or injure pipe lines or tanks. The characteristics of the Burbank crude emulsions are such that a resolution of the emulsion into a merchantable oil may be accomplished at a cost of 1 cent per barrel of oil recovered.

Storage

The storage problem in the Burbank Field is of vital interest to every operator for many reasons which would be impossible to detail in a short discussion on the subject. First, when the introduction of the purchase of oil on a gravity basis became a general practice in November, 1922, it became imperative to adopt gas tight steel storage and thereby minimize evaporation and gravity losses. Besides reducing evaporation losses and preserving the oil at a higher gravity, the many other advantages due to reducing leakage, providing better facilities for gathering excess gas for fuel and gasoline manufacture, are no less important. Lease storage usually consists of ten 250-bbl. gas tight steel stock tanks; also one 210-bbl. steel flow tank to each four wells. Large storage includes 55,000 and 77,000-bbl. capacity steel tanks, the majority of which are equipped with gas tight Gatrell roofs. As of October 22, 1924 there was in storage in the Burbank Field, in 55,000 and 77,000-bbl. capacity tanks, a total of 13,107,000 bbls. of crude oil, owned by 11 different oil companies.

Transportation

The transportation of oil in the Burbank Field is mainly accomplished by purchasing companies having pipe line gathering systems throughout the field, and by tank car shipments over the railway lines operating within the field. Practically all of the large purchasing companies have lines into the Burbank Field and no further trouble is anticipated due to lack of transportation facilities, although at several times in the past the pipe lines could not handle all the production.

All leases are equipped with flow lines to handle the production from the wells to flow tanks. The flow tanks are elevated wherever possible, in order to gravity the oil from the flow tanks to stock tanks, but where the topography does not permit such a gravity system, steam pumps are used to handle the oil. Four or 6-inch oil lines connect the lease stock tanks with storage tanks or directly connect stock tanks with branch lines of the purchaser's pipe line gathering system. This net work of oil pipe lines in the Burbank Field has involved an expenditure of millions of dollars to the operating and pipe lines companies, to says nothing of additional millions expended in main lines connecting the field.

Recovery

The matter of how much oil has been recovered and how much more oil will be recovered is, of course, of vital interest to the companies who have expended such gigantic sums of money in the Burbank Field. Up to October 1, 1924, the total gross recovery from the entire field has been 87,000,000 bbls. Of this amount, approximately 15,000,000 bbls. have gone to the Osage Indians and other landowners as royalty. It is difficult to determine the exact amount of the royalty as the proportion varies from one-eighth in the Kay County extension to one-fifth or one-sixth in Osage County, depending on the size of the wells. It is perhaps the irony of fate that the production has not been divided up in exact proportion to the amount of money expended. The owners of the highest priced leases do not necessarily have the most productive tracts, although a great number of the leases costing in excess of a million dollars have proven profitable investments.

A study of the per acre yields of the various tracts is quite interesting. A summary of those which had produced in excess of 5,000 bbls. per acre on October 1, 1924, shows the following:

Above 15,000 bbls. per acre, 3 tracts; 10,000-15,000 bbls. per acre, 9 tracts; 5,000 - 10,000 bbls. per acre, 43 tracts.

The above figures do not indicate any spectacular yields such as are shown in some pools. There has only been one producing sand and only one well has been drilled to each 10 acres, which factors have tended to prevent rapid drainage of the sand and large per acre yields.

In the final analysis the Burbank Field is not a great deal different from other large oil fields. The fact that it is located mostly on Indian lands controlled by the Government has instituted some new factors in its development, of course, and its immense size and great productivity have caused it to get perhaps more publicity than usual. It will perhaps enjoy for a long time the distinction of having had a "shutdown program" which really accomplished its purpose, although at a very great loss to most of the companies involved. After all the glamor and romance has been brushed aside, the Burbank Field is resolved into the same old problem which has confronted the oil men since the earliest stages of the industry, viz: To drill in the wells, equip them for pumping and then see that they continue to function. The limits of the field are not yet definitely determined on the north side and it may be that there is much yet to be discovered, but be that as it may, already sufficient has been discovered to place the name of the Burbank Field indelibly on the annals of the oil industry as one of the real major pools.

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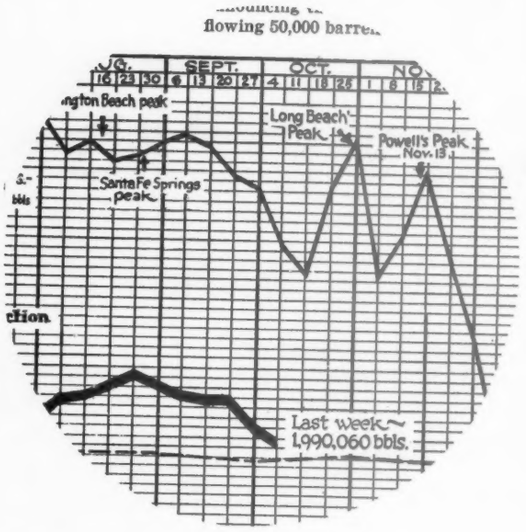

How to Combat This Uncertainty

Oil production and price curves generally look like the teeth of a cross cut saw. It is difficult to tell what is going to happen next.

Similarly those who use the old type of working barrel don't know what will happen next. They are continually pulling their wells because there is no certainty about the barrel.

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Put a "Tex" in your WORST well and you'll put a "TEX" in every one. Learn for yourself how dependable the "Tex" really is.

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TWO-THIRDS BRADFORD OIL IN GROUND DR. WHITE URGES PLANS FOR RECOVERY

By Dr. David White

Address before Bradford Board of Commerce

The Bradford sand is like a mine from which the greater part of the easily recovered ore—the carbonates and oxides—has been taken out. Meanwhile, enormous reserves, several times greater than the other of high grade sulphides and silicates are left in the ground because of lack of knowledge of how profitably to extract their values. Water drive has been applied in parts of the district simply by letting the water from sands nearer the surface run down into the oil sand. There the hydrostatic pressure of the water or capillary attraction, or both, are supposed to drive the oil out of the sand in the direction of least resistance, which is presumed to be toward a nearby well into which it may escape ahead of the water.

In certain areas, like the Simpson Pool, where water drive, or flooding, seems to work better than others, the general result is seen in notably rejuvenated production. In fact, the supplementary recovery gained by flooding appears to be considerably larger than the original yield by pumping. Under favorable conditions obtainable in a few areas recoveries of 10,000 bbls. per acre have been won by water drive, and it is reported that locally nearly 15,000 bbls. have ben taken out by this method. But while the production is greatly increased in some areas, flooding has failed in some other areas, and the general results as to profits appear to be disproportionately small.

To account in part for disappointments, it is seen that in general the application of water drive has been somewhat desultory, blind, sometimes misguided, and too little cooperative. The method has been applied by individual companies or small groups usually with more regard for lease lines than for the structure or the geographic relation of the point of application to the pool as a whole. Too frequently, water has been forced down into the sand in any part of the pool that might be chosen, not only without regard to the undulation slope, or structure, of the sand, but with disregard of any gas that may be present, or of marginal water. Further, the sands of the Bradford Field are unusually fine grained and hard. They are tighter than most sands and are consequently relatively resistant to flow so that the water travels generally less than 200 feet a year, even with favorable porosity. Profits may therefore be slow in coming, though they should continue long where the method is really successful. Finally prices in very recent years have been too low.

Flooding Misused

On the other hand flooding has been employed where it should not have been used. It has ben tried without adequate examinations, or even with no preliminary examination or survey to determine the practicability and effectivemenss of its use in the whole or any part of the sand in the area. Attempts have been made to drive water into the sands in some areas where evidently it can never be successfully employed. In certain cases, the water has run along through streaks of coarse sand or sand of higher porosity without driving the oil before it. Here it has passed the oil lying in the more fine grained sands on either side, above and below, the coarse streak. In some areas it probably has not only failed to displace the oil, but has actually damaged the properties by rendering portions of the oil less easily recoverable or possibly irrecoverable. This remains to be seen. Due, again, to lack of adequate surveys and investigations of the sands, the water is said, in some instances, apparently to have escaped by running around behind the producer and into the properties of his neighbor instead of going where it was expected to go, pushing the oil ahead of it. So far as we now know, the worst results of the blind use of flooding without due investigation in advance are (1) failure of the water to penetrate certain areas; (2) probably greater difficulty, or perhaps the impossibility of subsequently extracting oil from some of the flooded areas; and (3) failure to win a large enough portion of the oil present in the sand.

The Bradford sand producers are questioning whether flooding is suited to other portions of the district; whether, in some areas, water drive may not do more harm; whether present recoveries are the largest that can probably be won by this method, and whether any other method may, in parts of the district, lead to larger recoveries at a profit.

Leaves Two-Thirds Oil

Many of the producers are of the opinion that, in certain areas, water drive is satisfactorily efficient as well as profitably cheap. Where the process has yielded largest recoveries it is believed the water has there driven most of the oil out of the sand which consequently is relatively emptied of its oil. A core from one of the supposedly best drained areas has been submitted to the United States Geological Survey. A. F. Melcher of the survey makes the surprising discovery that this presumed nearly oil-empty sand still contains 62 parts of oil to 38 parts of water. Ten per cent of the entire volume of the rock tested is found still to be oil. The pore space is about 15 or 16 per cent of the total volume.

This test accords with other tests of sand from the same area. On the basis of its yield under the pump, and of its subsequent supplementary output under flooding, this core may, with probable safety, be taken as representing the Bradford sand in fairly good condition and in constitution relatively favorable for the application of water drive. Roughly calculated 15 per cent of the original oil may have been removed by pumping, and as much more, or possibly 20 per cent, may have been recovered by water drive. This leaves about 65 per cent, or two-thirds, of the original content still in the sand in which flooding is supposed to have done its best.

Shall we rest contented with a method which leaves two-thirds of the oil in the sand? A primary requirement in attacking the Bradford problem is the detailed knowledge of the undulations of the sands and associated beds, the geological structure. It is already known that, contrary to previously prevailing opinions, the beds are undulated by folding and that the occurrence of the oil and gas is more or less distinctly confined to anticlines and domes. It is likely, however, that in some pools oil production is limited to more porous lenses of sand lying on the flanks of the folds and even in synclines or basins. The survey should, so far as possible, include the measurement and sampling of the beds of the sand as well as the contouring of the sand itself. Pay streaks should, of course, be identified and located and their individual extent should be determined and mapped so far as practicable. It is desirable that, where practicable, continuous patches or streaks of sand of any given type should be mapped with reference both to the vertical and the horizontal directions. In these field investigations the operator and engineer should cooperate in the fullest degree with the geologist, the physicist and the chemist.

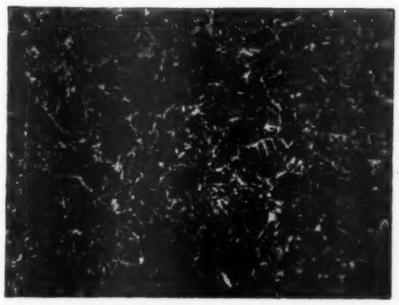
Thorough Examination

Collateral examination may readily be made of the sands to show the extent of the cementation or solution of the rock that may have taken place, for these bear upon the distribution and pressure of the oil in the sediments, as well as on the size and character of the pore spaces.

The principal and perhaps the most important of the essential investigations and experiments are to be carried out in the physical and chemical laboratories. These include, first of all, the examination of the sizes, shapes and arrangement of the

The Same **OUTSIDE** — *but far different* *INSIDE*

THE NEW JONES FORGED END RODS



Micro-Photograph of rod showing greatly enlarged grain structure of Sucker Rod Steel when it has been heated to a forging temperature and cooled in air.

Photograph showing the same piece of steel after being normalized. Note the dense grain structure, which results in greatly increased strength.

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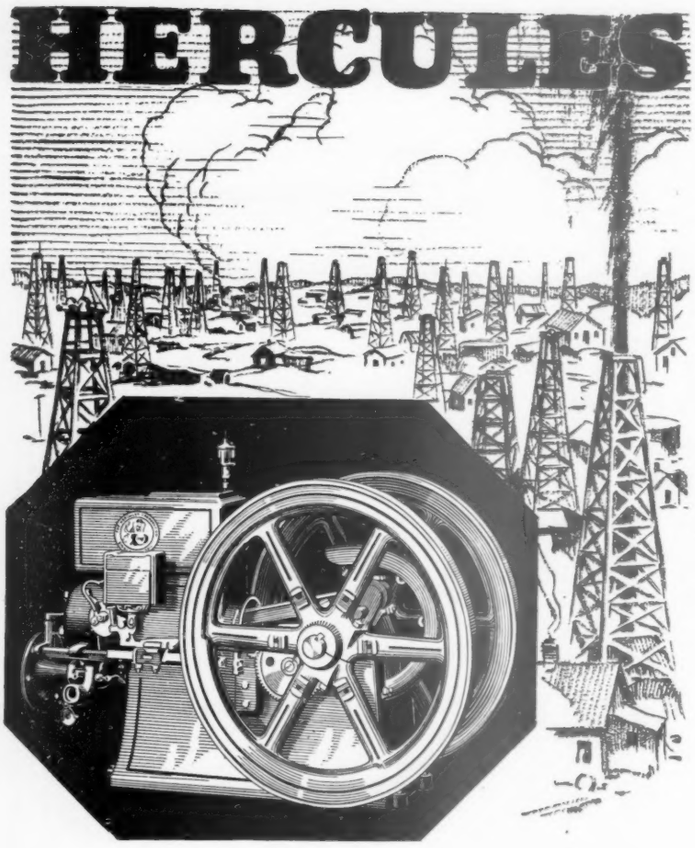

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sand grains in all parts of the Bradford sand, including the pay streaks, the impregnated but unproductive portions, and the tight sections. Tightness has never been defined in precise terms because it is not precisely known. Naturally, it must vary somewhat according to the type of the sand, the viscosity of the oil, and possibly other factors.

It is quite within the range of possibility there are virgin areas or zones bordering the producing pools, in which oil is present in sand too tight, or is in amount insufficient to respond to the pump or even water drive, as now used. The saturation may be nearly as great, and perhaps greater, than that now found in portions of the producing sands that have been subjected to flooding with favorable results. The ultimate recovery of oil from some of these areas not included in the producing portions of the district is not beyond possibility though it should not figure in any present calculations.

Corresponding to the studies of the sand grains are the necessary measurements of pore space, with obesrvation of the characteristics of the pores since, as Melcher has shown, both the rate and the total yield of oil in any field are largely controlled by these two factors, pressure being a third. It remains to be seen what pressures are needed to force the oil from pores and capillaries of different types, or whether it is practicable to attempt to drive the oil from certain sands by mere pressure of water.

Rate of Movement

Another fundamentally important matter is the determination of the rate of movement of gas, oil and water through the different types of sand in the Bradford-Allegany district and the factors and conditions controlling their flow. The movements of these fluids must be observed and tested with reference to their relations to one another, as well as to the constitution and composition of the sand. Measured pressures must be used, and different methods and mediums of drive should be tested. The effect of catalyzers must not be overlooked, and it is likely profitable information if not succinctly advantageous results may come from experiment with a number of chemical and electrolytic agents, the effects of which may be the more ready release and flow of the oil now held in the grip of the small pored sand.

The researches in the movements of oil, gas and water with reference to minute pores of varying forms and even to capillaries of different kinds should yield important additions to our knowledge of the occurrence and distribution of oil and gas, for it will be borne in mind that our present understanding of capillarity and of the forces actually controlling and adjusting the distribution and movement of water, gas and oil in different types of sand is deplorably imperfect and lacking demonstration.

Small Research Investment

Gauged by the ordinary methods of recovery of the oil by pumping, the Bradford-Allegany district is nearly played out. Yet the tests of the core from the area where pumping has been supplemented supposedly with greatest success, by water drive indicate, according to Mr. Melcher's calculation, an original oil content of 37 feet of the sand amounting to over 40,000 bbls. per acre, of which between 25,000 and 30,000 bbls. still remain in the ground, to be recovered in part, it is to be hoped, by methods yet to be developed or discovered. If the producing territory of the Bradford-Allegany district totals 85,000 acres—it is said to be 100,000—and the samples examined by Melcher are representatives, there will remain at least 2,500,000,000 bbls. of oil in this area when flooding as now employed has been completed. The original contents of this area, he estimates at around 3,750,000,000 bbls. The present volume lies, of course, between this original content and the minimum that will be left after flooding. It probably approximates 3,000,0000,000 bbls.

To assume that all or the greater part of this great reserve of oil can be recovered by any method at present prices of Pennsylvania crude may lead to disastrous waste unless the experimental investigations should show this to be possible, which at present is hardly to be expected. Possibly it cannot be fully won by any means short of shafting, tunneling and extracting. Perhaps, however, we may eventually see shafts and galleries in the Bradford sand. On the other hand, there is little room for doubt either that larger recoveries, even by water drive, may be gained through the scientific investigation of the problem, or that methods of recovery will thereby be developed that will be adapted also to areas where flooding is unsuccessful, and that will lead to the capture of much greater portions of the oil at a profit. High prices will stimulate the use of more effective, as well as more expensive processes.

Cost of Plan

The cost of the required researches—including probably as much as $30,000, and possibly over $50,000, for the physical and chemical investigations—is insignificant in comparison with the great stake. It is an investment to win a billion barrels of oil. This investment should be made now. Better and still better prices are certain to come. The investment will pay if only through its guidance to the better and more successful use of the present system of water drive. On the other hand, it is wholly within the bounds of reasonability to expect that by the systematic and well advised application of the methods of extraction proved best for the different areas and stages of exhaustion twice as much oil will be recovered as has yet been taken from the entire Bradford-Allegany district, and that this oil will be won at a larger profit than that reaped by the producer in recent years.

Closer teamwork, between the oil men in arranging for water drive and closer cooperation with the geologists in applying it would unquestionably have added greatly to the success of the work done, and would possibly have led to good results in flooding some areas where this method has failed. The oil producers will be the principal gainers from these investigations, and the greatest gain will follow cooperation.

Cooperation will be needed in the application of the methods and principles derived from the examination of the facts. Joint cooperation between groups in given areas, as well as throughout the district, in the application of any method may be hardly less important than cooperation in the determination of the most successful method.

The leases of the Bradford-Allegany district hold a vast store of oil, probably around 3,000,000,000 bbl. and worth upwards of $10,000,000,000. Prices of oil will be higher before it can be recovered, but whether the oil has any value for the actual producer, depends on its recovery at a profit. This oil should net the producers several hundreds of millions of dollars if a method can be found for its successful and profitable extraction from the ground.

BUYS KANSAS PROPERTY

The J. A. Hull Co. has purchased the controlling interest in all the properties of the Emerald Oil Co. in Cowley County, Kansas, amounting to a total of 1,500 acres of leases, a large part of which is proven or semiproven acreage, in Township 32-4. Production from the property amounts to about 1,200 bbls. daily, of which one well completed to the Burbank sand furnishes about 800 bbls. daily. The remainder comes from 12 wells producing from the 1,400-foot and 2,300-foot sands. In the deal, the Buffalo Trust Co., bond holders for the Emerald and for several months in control of the properties, was satisfied. The deal was figured at approximately $750,000, according to officials of the J. A. Hull Co.

NEW GUSHER IN JAVA

The Bataafsche Petroleum Co. is reported to have struck a new gusher in its territory on Ceram Tandjong, Java.

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REPUBLIC SUPPLY CO

REFINING AND MARKETING

TEXAS INDEPENDENT OIL MEN IN SESSION

FORT WORTH, Tex., Nov. 15.—R. N. Mullen, of El Paso, was elected president of the Texas Independent Oil Men's Association at the second annual meeting here Thursday and Friday. He succeeds D. E. Little of Fort Worth, who has headed the organization during the past year. The 1925 meeting of the association will be held in El Paso.

Laxity in law enforcement came in for considerable condemnation. Discussion of this subject followed an address by W. M. Harrison, secretary of the association, in which it was pointed out that existing laws governing the sale of gasoline in this State were being very loosely enforced if enforced at all. Particular stress was laid on the habit of some retailers who, during the recent gasoline wars, failed to handle a product that met the requirements laid down by law. Mr. Harrison said that during one price-cutting period tests showed that probably not more than one-fourth of the gasoline sold in Fort Worth met the requirements fixed by State law.

The convention went on record as favoring a uniform gasoline sales law, which would standardize the price all over the State, allowing only for differences in freight rates. The convention also passed a resolution favoring a 2-cent gasoline tax in Texas, as against the present tax of 1 cent per gallon. The convention, however, favored the tax being collected from the consumer.

The curb pump station and its effect upon the retail gasoline business was discussed at length. A resolution was passed requesting governing bodies to exercise strict regulation over the so-called curb pump stations.

The convention was attended by about 75 members of the association, every section of the State being well represented. A committee consisting of Lawrence B. Dunham, of Dallas, W. M. Harrison, of Fort Worth, and Chester Slimp, of San Antonio, was appointed to investigate the uniform sales law as it is applied in a number of States at present and to determine the good and evil results of such a measure. It was also proposed a law be passed requiring all gasoline offered for sale meet the New Navy specifications.

Other new officers of the organization elected were Weston Atwood, of De Leon, first vice president; A, L. Chase, of Clarendon, second vice president, and L. A. Green, of Fort Worth, secretary-treasurer.

The board of directors elected at the general membership meeting is comprised of the following: L. L. Boardman, Boardman Oil Co., Wichita Falls; R. N. Mullen, Calumet Oil Co., El Paso; A. L. Chase, Caraway & Chase, Clarendon; E. J. Lindeman, Ranger Oil Co., Houston; D. E. Little, Litwood Oil & Supply Co., Fort Worth; C. A. Slimp, Slimp Oil Co., San Antonio; L. A. Green, Radio Petroleum Co., Fort Worth; W. E. Campbell, Panhandle Producing & Refining Co., Wichita Falls; Weston Atwood, De Leon Pipe Line & Refining Co., De Leon; Elliott Jones, Elliott Jones Refining Co., San Antonio; W. R. Smith, Oriental Oil Co., Dallas; A. M. Lockhart, Rio Grande Refining Co., El Paso; W. M. Harrison, Star Refining & Producing Co., Fort Worth, and L. B. Dunham, of the Clayton Oil & Refining Co., Dallas.

MAY REOPEN SAPULPA PLANT

SAPULPA, Okla., Nov. 15.—It is reported here that the officials of the Sapulpa Refining Co. contemplate reopening the plant after completing improvements which will do much to increase its efficiency. A survey is now being made to determine the cost of the new equipment, which is said to cost about $20,000.

TEXAS CO. HEARING INCLUDED WITH REST

The case of The Texas Co., involving the export and coastwise rates on petroleum and petroleum products from the Mid-Continent Field to Gulf Coast ports, originally set for hearing by the Interstate Commerce Commission at Houston, Tex., November 28, has been cancelled and the case has been included for hearing with the reconvened Mid-Continent freight rate cases on refined products in St. Louis, December 3. The Texas Co. case is styled as I. C. C. Docket No. 16190, in which the Southern Railway and others are the defendants.

The case is important because of the increasing amount of export products which move from the Mid-Continent refineries to Gulf ports. The Texas Co. proposes an increase in the differentials that exist in the freight rates from Oklahoma and Kansas over Texas to the Gulf ports.

Hearing of the export and coastwise rate question as embodied in The Texas Co. case and consolidation with the four other rate cases by the Interstate Commerce Commission will bring together in one case all of the rate questions now involving Mid-Continent refiners. It will be remembered that freight rate questions on shipments of refined products from the Mid-Continent into Western Trunk Line territory was first heard at Excelsior Springs, Mo., in June, 1924, and again in October, 1924, at Fort Worth, Tex.

The four other cases are as follows: I. C. C. Docket No. 15584, Sinclair Refining Co. et al vs. Ahnape & Western Railway Co. et al; I. C. C. Docket No. 15585, Miller Petroleum Co. et al vs. Ahnape & Western Railway Co. et al; I. C. C. Docket No. 16065, Barnsdall Refining Co. et al vs. Louisiana & Arkansas Railway et al; and I. C. C. Docket No. 16066, North Texas Petroleum Traffic Bureau vs. Louisiana Railway & Navigation Co. et al. Numerous intervenors in the above cases have also appeared.

Thus, from the combined hearing of all rate matters before Commissioner F. I. Cox and Examiner Charles Seal, the entire rate structure on petroleum and petroleum products from the Mid-Continent to all points of destination should be brought out clearly and a satisfactory adjustment reached.

GRAHAM FIELD PLANT

ARDMORE, Okla., Nov. 15.—The construction work on the natural gasoline plant of the Magnolia Petroleum Co., in the northwest extension of the Graham Field, which is being rushed, should be completed late in December. The plant will be a five-unit combination absorption compression plant and will handle about 12,000,000 feet of gas daily. Field lines are being completed and a 2-inch loading line is being run to Healdton. J. A. Nicholson, head of the Magnolia's gasoline department in the Healdton district, is in charge of the construction operations.

HEROISM AT OIL FIRE

NEW YORK, Nov. 15.—A Pure Oil tanker was being filled with 370,000 gallons of gasoline by a pipe line from a dock on the Passaic River at Kearney, N. J., when Wesley Watson, a deckhand, saw the meadow grass aflame and the fire traveling swiftly toward the ship. Watson jumped ashore, dashed through the flaming grass and got down under the dock to shut off a valve in the feed line. By the time he had accomplished that the pier was aflame and he had to make his way back with his clothing afire. He leaped into the river and was rescued by policemen. At the hospital it was said that he might die.

TEXAS APPEALS SUIT AFFECTING CONTRACTS

AUSTIN, Tex., Nov. 17.—The State's appeal of its anti-trust suit against the Gulf Refining Co., in which it attacked exclusive pump contracts with retailers as in restraint of trade, has been filed in the third Court of Civil Appeals. District Judge George Calhoun, in trial of this and companion cases of The Texas Co. and Producers Oil & Refining Co., held the contracts were legal.

The State contended that by requiring the exclusive sale of gasoline or oil through equipment loaned or rented at a low cost to the filling station operators, the refiners bound up the retailers so as to prevent the sale of products of other firms. The refiners answered that while they required exclusive sale through their equipment, as a protection to the quality of their products, the contracts did not prevent retailers from owing pumps or installing those of rival concerns.

JOHN D. REYNOLDS RESIGNS

CHICAGO, Nov. 15.—At a meeting of the directors of the American Oil Men's Association, the resignation of John D. Reynolds as general secretary, which had been tendered to President Callaghan some time previously, was accepted. Mr. Reynolds has found that his law practice requires substantially all of his time. He has associated himself with Elmer O. Downs, an expert in law relating to taxes and they have formed the law firm of Reynolds & Downs. The position vacated by Mr. Reynolds was offered to H. G. James.

SHAFFER OIL CHANGES

CHICAGO, Nov. 15.—J. C. Kennedy has been appointed manager of the pipe line department of the Shaffer Oil & Refining Co., and is leaving Chicago for Tulsa immediately. He will also look after the tank car sales of the organization. The headquarters of the distributing subsidiary in Chicago will be located in the Gunther Building, where offices have been maintained for some time. It is not expected that John L. Gray, vice president and general manager, will transfer his headquarters to Tulsa before the close of the month. President Cummings will maintain his headquarters in Chicago.

UPHOLDS GASOLINE TAX

CHICAGO, Nov. 15.—Bruce Gaffil of the Gaffil Oil Co., South Bend, Ind., has lost his suit against the State of Indiana to set aside the 2 cents tax on gasoline. The State Supreme Court, in a lengthy decision, has decided that the law is constitutional and upholds the right of the State to levy taxes to any extent for the building and maintenance of roads. The State has collected approximately $6,555,000 since it began to levy the tax on June 1, 1923.

PIERCE CO. ENLARGING PLANT

The Pierce Petroleum Corp. is working on the enlargement and remodeling of its refinery at Sand Springs, Okla. The new work includes the modernization of the boiler plant and power plant, the addition of a 100-ton Carbondale refrigerating machine, the installation of Sharples dewaxing machines, the remodeling and improvement of the crude and lubricating stills, the installation of a 6,000-bbl. topping plant with complete fractionating equipment, additional tankage and many other minor mechanical improvements. J. M. Wadsworth, superintendent of the plant, is in charge of the improvements. Two units of the Cross cracking system are also being installed by the W. M. Kellogg Co.

STORAGE IN TRANSIT CASE BEFORE EXAMINER

The case of the Western Petroleum Refiners Association and nine other complainants, including several associations and supply companies, against the St. Louis-San Francisco Railway Co. and 111 other defendants requesting the establishment of a storage in transit privilege at St. Louis on iron and steel pipe and fittings was set for hearing in the city hall auditorium, Tulsa, Wednesday morning, November 19, before Examiner John Howell, of the Interstate Commerce Commission. The case is styled I. C. C. Docket No. 16128 and comes as the result of a desire of the supply companies, oil producers and various associations to secure the necessary tubular goods and other oil field equipment at a lower rate than has heretofore been possible.

The complaint asserts in part:

"That under existing conditions the distribution of these commodities from interior points is uneconomical. The nature of the oil producing business frequently demands on short notice large quantities of pipe not available at interior distributing points. Further, the inability to anticipate the eventual points of consumption results in back-hauls and also the assessment of local charges whether the ultimate destination is directly beyond the distributing point or intermediate thereto. This situation is economically unsound and is an economic waste of transportation.

"That there is a demand for a central distributing point with a storage-in-transit privilege at a reasonable charge and the protection of the through rate from point of origin to ultimate destination on iron and steel pipe and fittings from points east of the Mississippi River to destinations in the States of Kansas, Oklahoma, Texas, Louisiana and Arkansas.

"That St. Louis, Mo., is strategically located for the establishment of a storage yard on account of its adequate terminal facilities and the fact that it is directly intermediate between the points of origin and destination herein mentioned.

"That defendant carriers participate in the transportation of and publish rates applying on iron and steel pipe and fittings from points east of the Mississippi River, including the States of Illinois, Indiana, Ohio, West Virginia and Pennsylvania to destinations in the so-called Mid-Continent Field, comprising the States of Kansas, Oklahoma, Texas, Arkansas and Louisiana; that said defendant carriers' failure to provide a storage-in-transit privilege at a reasonable charge and the protection of the through rate from points of origin to ultimate destinations on the aforesaid commodities from points east of the Mississippi River to destinations in Kansas, Oklahoma, Texas, Louisiana and Arkansas is unreasonable and unjust, in violation of Section 1 of Interstate Commerce Act."

FATALITY AT REFINERY

Clarence Russell, 30 years old, a worker at the refinery of the Pierce Petroleum Corp., Sand Springs, Okla., died last week as a result of an explosion and fire at the refinery. Russell and three other men were working near a rundown tank which exploded. Russell's skull was fractured by a large piece of metal. The others were slightly hurt.

W. P. R. A. MEETING

Howard Bennette, managing director of the Western Petroleum Refiners Association has been holding a series of regional meetings among the members of the association during the past week. He held meetings at Wichita Falls, Fort Worth and Houston, Texas, Shreveport and New Orleans, La., and El Dorado, Ark.

One Thousand Cars

Every car shipped is guaranteed to contain the exact specifications ordered.

Of Natural Gasoline leave our fourteen plants each month. They are thundering on their way within a few hours after the order is received—many in solid trainloads.

Our enlarged facilities enable us to dispatch this enormous volume with promptness—the railroads giving the solid trainloads passenger train schedule.

GRADE "DOUBLE A"	All Grades are Manufactured by Chestnut & Smith Corporation	GRADE "DOUBLE B"
Recovery...Not less than 90% End Point..Not over 375° F. Gravity....80.0 to 87.9° Be.		Recovery...Not less than 85% End Point..Not over 375° F. Gravity....84.0 to 92.0° Be.
GRADE "A"	**GRADE "C"**	**GRADE "B"**
Recovery...Not less than 90% End Point..Not over 375° F. Gravity....72.0 to 79.9° Be.	Recovery...Not less than 78% End Point..Not over 375° F. Gravity....80.0 to 90.0° Be.	Recovery...Not less than 85% End Point..Not over 375° F. Gravity....76.0 to 83.9° Be.

These are the Official Specifications for Natural Gasoline as adopted and issued by the Association of Natural Gasoline Manufacturers—October 1, 1924.

Cut this table out and place in a convenient place.

CHESTNUT & SMITH CORPORATION

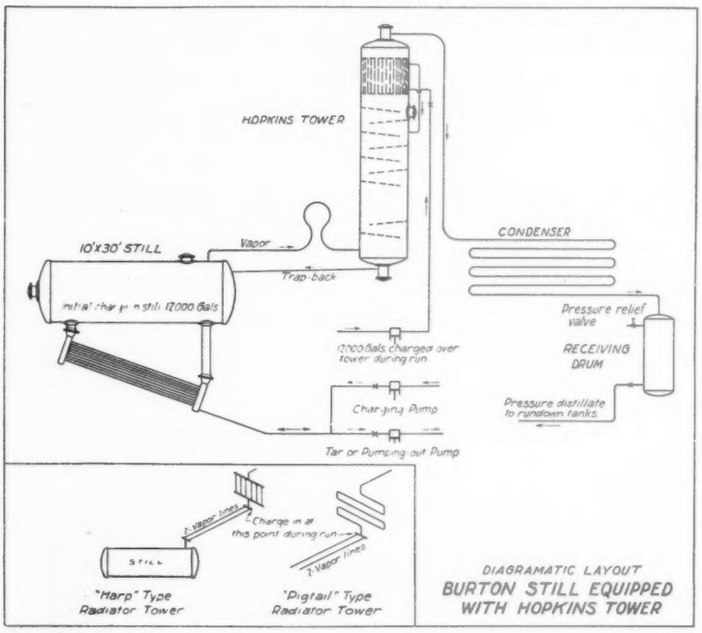
GENERAL OFFICES-CHESTNUT & SMITH BLDG.- TULSA, OKLA.

Interesting Process at Tidal Plant

Only Burton Cracking Installation in Oklahoma Gives Satisfactory Results. Skimming Plant Operates on High Gravity Crude

By C. O. Willson

It is sometimes claimed among refinery operators that the so-called cracking processes are not needed at refineries operating on the higher gravity crudes. This contention is based on the fact that a large recovery of light end products is secured from the skimming operation with a relatively small output of material suitable for charging stock in cracking operations. The quality of crude including the gravity unquestionably does have direct bearing on the desirability of operating cracking units in connection with skimming plants. This is usually reflected both in the type of installation and method of operation. However, leading manufacturers of cracking processes have never conceded that their particular type of process would not show profitable operation regardless of the gravity of the crude stock under normal marketing conditions.



It is partially due to the disagreement among refinery technical men that the Burton installation at the Drumright, Okla. plant of the Tidal Refining Co. which has been in operation during the past year and a half, is of special interest. The skimming plant is operated on crude which at the present time averages 40 degrees Baume. This crude supply is from 5 degrees to 10 degrees Baume higher than that on which a majority of the plants of the Mid-Continent Field are operated.

Outside of the high gravity crude supply the refinery operations at the Tidal plant do not differ greatly from other Oklahoma plants. The Tidal Refining Co. is a subsidiary organization of the Tide Water Oil Co. Another subsidiary—the Tidal Oil Co.—has large crude production in the Drumright area and furnishes the bulk of the crude supply for the refinery.

Mechanical Features

The accompanying photograph of the installation and the diagram will serve to give a general conception of the mechanical features. A brief description will be given in order that the reader may more readily grasp the actual operation of the process.

The five Burton stills proper—sometimes known as the Burton-Clark tubular stills—do not differ materially from other recent installations. The shells are 10 by 30 feet, each equipped with 45 4-inch O. D. tubes which are rolled into the front and rear headers. Fire is applied to the tubes only, the shells being protected by brick archways over the tubes.

A 6-inch insulated vapor line with expansion bend connects each shell with its respective Hopkins towers. The latter, which combines a baffle tower with a heat exchanger, is probably the most interesting mechanical feature of the entire installation. Briefly described, it consists of three compartments divided as shown in the accompanying diagram within a shell 8 by 34 feet. The vapor line enters the lower compartment which is also connected to the trap back line at the bottom of the tower. Above the lower compartment—which contains the baffle—is the heat exchanger section consisting of two tube sheets connected by 263 1-inch tubes. This exchanger has a capacity of 1,800 gallons in the spaces around the tubes. The oil feed line connects to the lower part of the exchanger, entering the space around the tubes. The oil rises around the tubes and overflows from the top of the heat exchanger section through a line discharging onto the baffles in the larger lower compartment.

A 4-inch vapor line connects the top of the tower to the condenser which in turn leads to the receiving drums in the receiving house. Here an elaborate manifold system provides an outlet to the rundown tanks for the pressure distillates and also connects to the high and low pressure gas lines. The high pressure distillate and lines are arranged so they may be connected respectively together so that one distillate valve and one gas pressure reducing valve will control the entire battery.

This very briefly describes the main features of the pressure installation. The equipment for the installation is modern in all details and those interested in refinery construction would find much of special interest outside the main features described.

Operation of Process

Each cracking unit operates on a 48-hour cycle. The operating divisions of a cycle will vary somewhat but the following is the usual plan of operation: charging, 1 hour; boiling, 4½ hours; building pressure, 5½ hours; run, 27 hours; reducing pressure, 1½ hours; pumping out still, 1 hour; steaming still, 3½ hours; stripping still, ½ hour; cleaning still, 2½ hours and heading, 1 hour. The first three stills operate three hours apart. For instance, if No. 1 started at 11 a.m., No. 2 would follow at 2 p.m., and No. 3 at 5 p.m. With this system No. 4 still would follow at 11 a.m. the following day and No. 5 at 2 p.m. By this arrangement a maximum operating efficiency is obtained. During a 48-hour period for the entire battery of five stills, four stills would be "on run" (the 27-hour period) 8 hours; three stills 28 hours and two still 12 hours. Thus at all times at least two stills and never more than four stills are operating at their maximum capacity which is during the 27-hour period. This arrangement permits of a minimum number of tube blowers and still cleaners.

Original Charge

The average original charge to the still is 12,000 gallons of gas oil. Then the fire is started and the plan of operation just outlined is followed out. As soon as the boiling starts the still is subjected to 25 pounds pressure to prevent the premature distillation of the charge. This 25 pounds pressure is backed up into the still from the high pressure gas line which at all times carries the maximum operating pressure of 97 pounds, required for efficient operation during the 27-hour period. After the still has been subjected to the 25 pounds pressure it builds up its own pressure to the 97-pound operating stage, the pressure gradually increasing as the temperature rises. When the 97-pound pressure stage is reached the still is "cut in" with other units which are "on run." This multiple connection through the high pressure gas line makes possible a centralized control of all operating units of the battery and at the same time minimizes the danger of sudden changes in pressure which if too low results in the production of low grade distillate and, if too high, stops the flow of vapors.

When the gas pressure exceeds the 97-pound operating pressure it is released through the control valve into the low pressure line in the receiving house. This excess gas has a small gasoline content but at the Tidal plant it is generally used as fuel with the residue gas from the natural gasoline plant located near the refinery.

The temperature and pressure both gradually rise, the latter being 750 degrees and 760 degrees Fahrenheit when the desired pressure is obtained and the pressure distillate begins coming over in the receiving drums. This marks the beginning of the 27-hour run.

Hopkins Tower

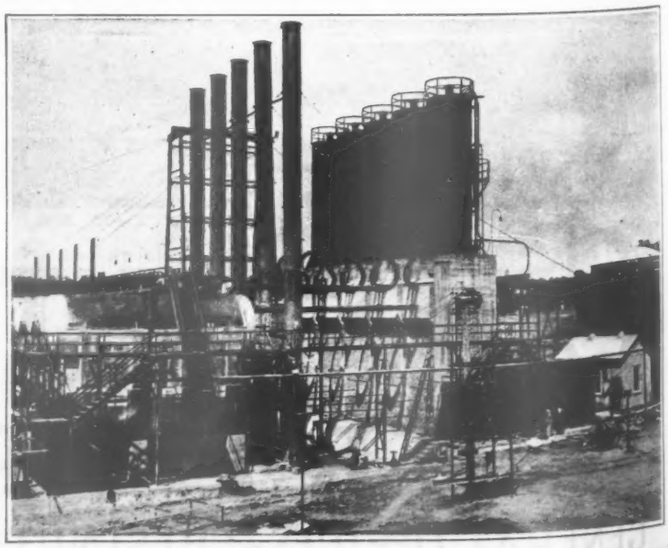
At this point the feed operation starts through the Hopkins tower. This fresh gas oil is fed into the second compartment or exchanger of the tower. Entering at the bottom of the exchanger the feed surrounding the numerous small tubes gradually works up to the top where it drops back to the lower compartment where it strikes the baffles coming in direct contact with the vapors from the still.

The liquid now heated to a temperature of 400 degrees to 500 degrees Fahrenheit falls to the bottom of the tower and passes together with the heavy ends condensed out of the vapors, to the still through the back trap line. The uncondensed vapors pass through the 1-inch tubes into the upper compartment and from there to the condensers. The condensate passes to the receiving drums from which the pressure distillate is released to the rundown tanks.

It is apparent that in a very direct sense the Hopkins tower is the "heart" of the process. Outside of the pressure, the operation can practically be controlled at the tower. Contrasted with the original aerial towers shown in the diagram as the "Harp" type radiator tower and the "Pigtail" type radiator tower with the two large vapor lines, it is apparent that it aids to the efficiency of the process in several respects.

The aerial types of towers consisted of a number of exposed pipes arranged so as to care for both the vapors which passed to the condensers and the heavier ends which drained back into the still. This entailed a heavy heat loss as the heat units given up in condensing the

(Continued on Page 134)



Burton installation at the Drumright, Okla., refinery of the Tidal Refining Co.

Make two blades of grass grow where one grew before and do your part in carrying out the country's policy on conservation of crude oil at one and the same time Adopt the Dubbs Cracking Process, which to-day will give you 5 barrels of gasoline from every 10 barrels of gas oil, fuel oil or topped crude *once through* and this at less cost than by any other known method

Universal Oil Products Company
Owners of the Dubbs Process
312 South Michigan Ave
Chicago Illinois

A Chain Is As Strong As Its WeakestLink

Expert engineers have perfected ways of obtaining crude oil from the ground. Great refiners have in turn transformed this crude substance into the very fuel of progress.

This much being accomplished, the problem remained of getting the various kinds—weights—and grades of oil into the hands of the retailers as efficiently and with as little cost as possible.

This link in the chain of oil marketing is of the greatest importance.

Obviously it would be economic folly for one retailer to attempt to buy his countless needs from a relative number of refiners. Likewise, such a procedure, necessitating a great many separate sales and shipments, would be too costly for the refiner.

The solution for this problem is the existence of such concerns as the Acme Petroleum Co., who store quantities of oil in huge tanks. These concerns with their tank cars can quickly and efficiently supply the varied needs of the oil retailers.

A test of Acme service will convince you.

(This is fifteenth of a series of informatory advertisements on distribution problems with which the Oil Industry has to contend.)

ACME

Petroleum Company

Executive Offices: 624 S. Michigan Ave., Chicago

KANSAS CITY, MO. Land Bank Bldg.

DALLAS, TEXAS Magnolia Bldg.

OIL STORAGE PLANTS

Over 6,000,000 Gallons Storage

West Tulsa, Okla. **Blue Island, Ill.**

(Chicago Switching District)

CHICAGO LOOKS FOR HIGHER PRICES

Jobbers Ordering on Contracts. Higher Gravities in Demand. Absorption Blends Scarce. Kerosene and Distillates Slow. Fuel Oil Not Satisfactory. Lubricants Bullish. Tank Wagon Situation Unchanged

By John B. Waldo

CHICAGO, Nov. 15.—Having had time to scan the election results and assimilate the possibilities and probabilities for the future, the local industry has concluded there are good times in sight and that next year will be a prosperous one. It is amazing the way the industries generally have started to do business. Architects say they never had so much business offered them, more than they can handle. Dealers in building materials state the trouble is to get supplies to fill the advance orders pouring in. There is a huge demand for industrial steel. With few exceptions the industrial life of the nation has been stagnating and now with the barrier of uncertainty removed it is planning to make up for lost time. Warnings would be simply wasted.

The result, so far as the petroleum industry here is concerned, is a feeling that prices are low, should be higher and undoubtedly will be higher and yet there is no great increase in actual consumption and refined supplies are generally ample with plenty of raw material and a manufacturing capacity in excess of any probable demand.

The actual consumption of gasoline in this territory has been checked by colder weather, yet jobbers are taking in supplies and carrying larger stocks more willingly than they did three months ago when prices were lower and the demand large.

Distributors report the sale of gasoline has slowed down considerably since the beginning of the month although there has been little really bad weather and the roads are still fine. Refiners state every contract customer on their books has ordered out his full quantity for November and in many cases asked for early shipment of the entire quantity. This simply means that these jobbers expect there will be higher refining prices and they also look for a tank wagon advance. They base this belief on the reports of a lively demand and the return of the practice of paying premiums for crude. The entire industry here expects crude will be advanced and the tank wagon prices will follow promptly. Just why refiners should desire a crude advance is a question. One answer suggested is that it will increase the supply and while statistics show a large quantity of crude in storage, it is largely the property of the larger organizations who are holding it and supplies are not readily purchased right now by independent refiners. One refiner is reported to have been trying for two weeks to buy production with no success and he had to purchase crude in store and pay for the tanks.

Want an Advance

It is easy to see why the refiners with marginal contracts want a tank wagon advance. Several have said an advance of 1 cent in the gasoline price at the tank wagon would do a lot of good. In numerous instances it would increase the returns on marginal contracts from 6¼ and 6½ cents to 1 cent more. In the case of the contracts with an even wider margin it would be equally helpful and more necessary. The jobber who is buying in the spot market is anxious for a higher tank wagon price. If there are any jobbers in Chicago without a marginal contract, their gasoline is costing them delivered 9.88 cents a gallon. As most of the local business is done at the quantity price of 13 cents it is easy to see where such a jobber wants a tank wagon advance. They expect present refinery prices to hold or substantially so. The bulk of the business is being done at 7½ cents for New Navy (U. S. Motors) gasoline. Some refiners are selling to the trade at that price and others are asking 7¾ cents and even 8 cents but the sales at 7¾ cents are comparatively few and most commonly for cars in transit and so far as the writer knows there have been no sales of Navy gasoline at 8 cents and probably none were expected or wanted as the refiners making such a price must be sold up. There is a lot of gasoline that was bought at less than 7 cents for November delivery yet to be marketed. Should the demand decline sharply it is possible the end of the month may see an easier market but it does not seem likely in view of all the possibilities to the contrary.

Higher Gravities in Demand

The demand for the higher gravities has been unexpectedly large. Distributors and marketers alike have no way of accounting for it. Several have suggested the advertising and sale of the gasoline "tonics" has awakened the motorists to the fact that there are grades of gasolines that will give more power and what is generally desired, more speed, than the regular station price gasoline and it has also encouraged the jobbers to push the sale of gasoline at a higher price than the regular posted prices at the filling stations. This is as it may be, but there is really a great demand for these gravities and some marketers who have specialized on them have stated they sold more of the higher gravities than of the 437 end point stuff. One of the most wanted gravities has been the 64-66 in either the 375 or the 390 end point and it has been hard to secure. Shipments have been delayed and there was practically none to be picked up near here. It cost the jobber practically 2 cents more than his Navy gasoline and sells for 4 cents more at the filling station. It should be profitable.

The demand for absorption blends has also showed great activity and these are scarce. Quotations are reported from refiners of these at 8¼ to 8½ cents and this price was too high for the jobbers who expect to get an absorption or high grade blend at the price of this Navy gasoline. The local demand for natural gasoline has not been active but declares have watched the market soar and wished they had some. There have been inquiries from provident and far seeing jobbers for prices over December but the local trade has been shy of quoting even at high prices fearing the general drift of conditions.

Kerosene Slow

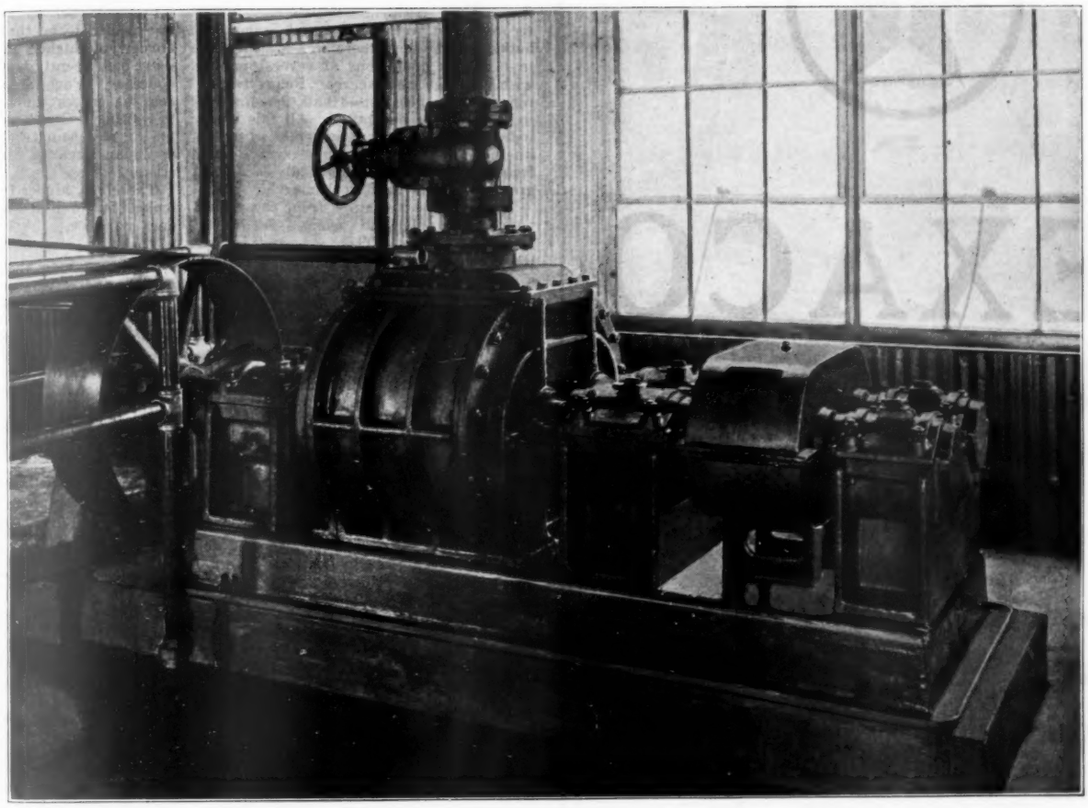
Kerosene is not actively in demand and the prices are in a so-so condition. Some refiners have had luck and sold at 4¾ cents and others without the same fortune have had to take business at 4⅝ cents. Some salesmen feel rather grateful to kerosene for they say it is the only thing not sold up. The feeling here is that the domestic demand is not liable to show any great improvement but there will be more exports of kerosene and with a cold spell, the refiners will run less of the product and that the market is safe and may move up a jog.

Distillates Await Reorders

Distillates are moving slowly. The territory up to the latter part of the week has had no cold weather to cause a larger consumption and with all tanks from the refiner right down to the consumers filled there is nothing to do but to wait until the consumer burns enough oil to need a refill. There will be a lot of them come into the market at the same time, it is believed, and then the jobber will have to reorder and the movement will begin and continue at a pace that will be set by the readings on the thermometer. One of the largest distributors of domestic burner oils has estimated the

(Continued on Page 100)

ROOTS



Installation at the plant of the Barnsdall Refining Co. showing a Roots Rotary Gas Pump in service.

Further Steps Toward Increased Profits

THESE bulletins are the keys to low cost pumping service:

107-108 Roots Rotary Gas Pumps for still vapor recovery, pumping natural gas to compressors, etc.

111 Roots Positive Displacement Gas Meters.

113 Roots Rotary Pumps, the only successful pump for gasoline, tar, crude, refined, and heavy oils.

114 Roots Rotary Vacuum Pumps.

118 Engineering Tables.

101-102 Roots Rotary Blowers for oil and gas burners and agitating oils.

UTILIZATION of uncondensed still vapors for fuel after passage through absorbers is a practical possibility with Roots Rotary Gas Pumps. Refineries can also greatly increase the capacity of their compressors by delivering the natural gas to them at a pressure above atmospheric with Roots Gas Pumps.

Large refineries have proved these facts by installing Roots equipment. Small refineries can adopt the practice as a means of lowering costs and securing more profitable returns from their operations. In addition to Roots Rotary Gas Pumps there are Roots Pumps for handling every petroleum liquid from casing-head gasoline to tar, thus rendering a complete pumping service to the petroleum industry.

Come to Roots with your pumping problems—our engineers will gladly co-operate with you.

The P. H. & F. M. ROOTS CO.

CHICAGO
Peoples Gas Building

CONNERSVILLE, INDIANA

NEW YORK
120 Liberty Street

TEXACO

REG. U.S. PAT. OFF.

TEXACO

Petroleum Products

HIGH GRADE UNIFORM QUALITY

Gasoline	Greases
Kerosene	Cup Greases
Fuel Oils	Gear Greases
Bunker Oils	Gear Lubricants
Diesel Fuels	Axle Greases
Signal Oils	Wire Rope Lubricants
Miners Oil	Pale Oils
Gas Oil	Red Oils
Distillates	Black Oils
Spindle Oils	Floor Oils
Motor Oils	Waxes
Engine Oils	Asphalts
Dynamo Oils	Road Oils
Machine Oils	Asphalt Cement
Cylinder Oils	Pipe Coating
Cylinder Stocks	Roofing
Car Oils	Roofing Paper
	Roofing Cement

THE TEXAS COMPANY

NEW YORK 17 Battery Place — CHICAGO McCormick Bldg. — HOUSTON The Texas Co. Bldg.

Offices in Principal Cities

Export Dept.: 17 Battery Place, New York City

GASOLINE OUTLOOK BETTER IN EAST; DISTRESS OFFERINGS DECREASING

By N. O. Fanning

NEW YORK, Nov. 17.—The gasoline price outlook on the eastern seaboard is improving. Although no changes were recorded last week in the tank wagon or bulk markets here, there was a stiffening in tank car quotations at several points with offerings more scarce. Pennsylvania refiners have also raised bulk gasoline ½ to ¾ of a cent per gallon. All this is an indication that distress offerings of gasoline in this territory are becoming less frequent, and these admittedly are the greatest factors in a weak market.

The gasoline situation from the viewpoint of supply and demand is exceptionlly good here. There has been practically no rain in the East for more than a month. Weather has been exceptionally favorable for motoring. The turnover in gasoline has consequently been far above previous records for this time of year.

Furthermore, with distress offerings not so numerous, the situation comes into control of strong hands. A half dozen companies could be named which hold the bulk of stocks at refineries in this territory or at distributing stations. With bad months behind, it is doubtful whether these concerns will be willing to continue to sell gasoline at present prices much longer.

Sinclair Refining Co. was reported to have offered gasoline in tank car lots at New York and Philadelphia for from 9¼ to 9¾ cents per gallon. That offerings at these figures were not large is indicated by the maintenance of a tank wagon market in this territory ranging from 13 to 15 cents. The spread is too large to make the lower figures representative, inasmuch as local refiners will not sell spot gasoline for less than 11¾ cents for domestic delivery, or under 12¼ for export.

The fact is that the present tank wagon market, judging from the most recent developments, is too low based both on the price of crude oil and on prices in other markets, especially those of the Southwest. The outlook is for an advance in the eastern tank wagon market of about 2 cents to 3 cents per gallon, especially in New Jersey and in New England.

Kerosene Soft

Softness in the local kerosene market was indicated by the fact that the refinery price dropped ¼ of a cent to 8¾ during the week, while tank car offerings are numerous at 8¼ cents for slightly lower grades. Furnace oil is not moving as fast as the trade had expected, but holds firm at 10 cents delivered in tank wagon lots of 750 to 1,500 gallons. This is due to unusually warm weather.

Gas and Fuel Oil

Gas oil holds firm with little activity except in the export trade. Refiners still quote 5 cents per gallon in bulk at refinery for 32-36.

Diesel oil is the feature of the fuel oil market. Heavy sales are reported for domestic and export delivery, with refiners preparing for the biggest year in this product they have ever witnessed. Conversion of tankers and small vessels to Diesel propulsion is going on at a rapid pace, and many new vessels are being equipped with Diesel engines, which have now been perfected to the extent of general recognition.

Diesel engines call for a higher grade of fuel oil than the ordinary grade "C" bunker fuel oil, and sell 25 cents per barrel higher, but is, for $2 per barrel, lighterage of 6½ cents per barrel extra.

Incidentally, as Panuco crude is too heavy to be used in the manufacture of Diesel oil, lighter grades of oil must be employed to be mixed with the heavier grade. The lighter fuel oil is now being purchased in the Gulf Coast and California fields and delivered to eastern distributing points in tankers. It is then mixed with Panuco to get the desired grade.

Although the continued drop in crude production indicates the outlook is more favorable for higher prices, it is doubtful whether these will be reflected in fuel oil and Diesel oil quotations. Gasoline is expected to be the product to bear the burden of higher crude prices, despite what has recently been said indicating the contrary. Fuel oil cannot compete with coal at prices much higher than those prevailing. On the other hand, gasoline prices, now being the lowest in years, can stand an advance, in the opinion of the trade.

Therefore, higher fuel oil prices are not looked for even if the price of crude oil does advance.

Lubricants Steady

No changes in the general level of lubricating oil prices in the East have been made during the past week, although advances were scored in other districts. Nevertheless, inquiries from the industrial trade are more numerous, and the demand from the automobile trade is unusually good. The price tendency is upward.

Paraffin wax is firm, with a noticeable increase in interest on the part of industrial users.

Export Demand Good

It is no secret in the oil trade here that a record export demand for oil products is confidently expected over the next few months. This expectation is based on advance orders for lubricating oils on the part of European consumers, and inquiries for gasoline, gas oil and fuel oil.

Furthermore, developments in the tanker markets indicate a growing demand for vessels to move export cargoes. The chartering market is unusually active, and purchasing and building of additional tankers is under way on a large scale in foreign trade circles.

The sale of the Shipping Board tanker "Lio" to the General Petroleum Corp. was reported. The vessels sold by Standard of New Jersey to Frank W. Seph are expected to be resold to foreign interests and probably will be transferred to foreign registry, which puts them to all intents and purposes in the export trade, as opposed to the intercoastal trade here.

New tanker fixtures include the following:

Tanker Hagen (Am.), 4,606 tons net, November-December loading, San Pedro to north Atlantic, at 70 cents per bbl.

Tanker British Sergeant (Br.), 3,337 tons net, December, refined oil, Gulf port to Trieste and Venice, 31-32s.

Steamer Huguenot (Am.), 4,282 tons net, November loading, crude oil, 9,000 tons, Gulf to north Atlantic, at 28 cents.

Steamer W. F. Burdell, (Am.), 4,351 tons net, November loading, same, 28 cents.

Tanker Wieldrecht (Du.), 2,210 tons net, November, 4,500 tons lubricating oil, Gulf port to Antwerp and Hamburg at 30s.

Motor ship Lidvard (Nor.), 2,158 tons, November loading, New York to Brazil or River Plate, cased kerosene.

Steamer Maliston (Br.), 3,438 tons net, November, 6,700 tons refined oil, Gulf port to United Kingdom and the Continent, 27s. 6d.

Steamer Claus Horn (Ger.), 2,073 tons net, Gulf to Danish ports, November loading.

Steamer Blairdam (Br.), 1,779 tons, asphalt, Gulf to England, November loading.

Tanker Sultan van Langkat (Du.), 2,260 tons net, December loading, 3,500 tons lubricating oil, New York to Copenhagen, at 26s. 6d.

Export Movement Heavy

During the week ended November 12 exports of petroleum products from New York were large, especially as to kerosene and lubricating oil. Shipments of kerosene aggregated 6,153,490 gallons in bulk and 2,250 gallons in cases.

Bulk shipments of lubricating oil amounted to 1,063,312 gallons, all of which was consigned to Italian ports.

Braden "E-Z-Bilt" Buildings

The Modern Oil Country Building

[In One Reel]

Each Braden Building has been carefully designed by skilled engineers.

Braden Buildings are shipped promptly—usually from stock.

Parts are clearly marked and perfectly fitted. No skilled labor required.

Braden Buildings are substantial, fire-proof, lasting

And yet they are easily disassembled and moved when necessary

Oil Country Specialists

The *modern* oil-country building is, of course, the Braden "E-Z-Bilt"—the convenient, efficient method that companies in every important field are adopting.

The pictures tell the story. Braden "E-Z-Bilts" are carefully designed by competent engineers. They are fire-safe, permanent and weather-tight; available for all oil-industry purposes, promptly shipped *and erected without skilled labor.*

Being oil-industry *specialists,* we offer certain advantages that can't be obtained elsewhere. As a means of saving time, labor and money on your next building, try the Braden "E-Z-BILT" way that so many oil men are adopting. The wholehearted cooperation of our staff is at your command.

THE BRADEN COMPANY
Tulsa, Okla.

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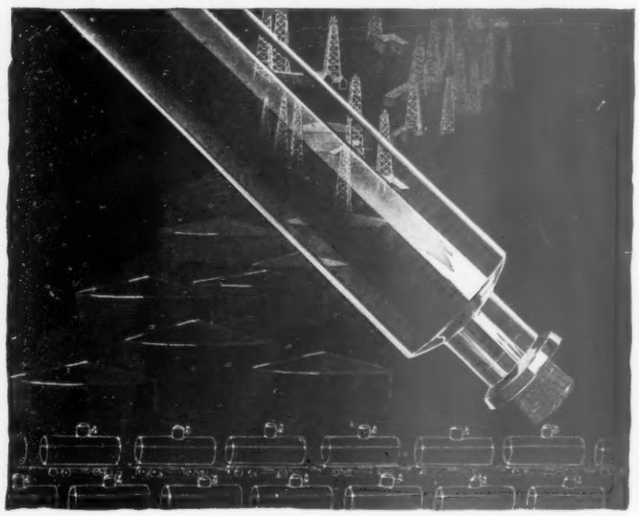
TRADE E-Z-BILT MARK

SAMPLE OIL BOTTLES



FROM the "gusher" to the "loading rack" effort has succeeded effort, no doubt, to insure the present quality of your product.

How essential is it then that the Sample Oil Bottles which display your stocks to observing buyers, should represent faithfully and to advantage this quality you are so proud of?

Our seamless Oil Bottles of clear flint glass have rendered valuable sales assistance to the oil industry for many years. They are available in 2 oz., 4 oz., and 8 oz. sizes with ground and polished bottoms when specified.

We want you to see for yourself how attractive your oil sample will appear in one of these crystal clear bottles. Write us today for a free sample bottle.

Illinois Glass Company
ALTON, ILLINOIS

Branch Offices In All Principal Cities

Barrel shipments aggregated 716,814 gallons, while case shipments fell off considerably to 39,670 gallons.

If shipments from New York are a criterion of the general export trade October will prove to have been a very good month, with November not quite up to it. Nevertheless, indications are that November shipments will compare favorably with the average monthly movement for the year.

Export prices at New York have not changed in many weeks, not having reflected the weakness in the domestic market. This in itself is looked upon as a proof of the favorable position of the export trade.

The following table shows principal exports of petroleum and petroleum products from New York as reported during the past three weeks:

	Week ended—		
Gasoline—	Nov. 12	Nov. 5	Oct. 29
Bulk, Gals. ..	427,602	5,060,615	6,574,645
Cases, Gals. ..	2,632,220	350,000	2,442,470
Kerosene—			
Bulk, Gals. ..	6,154,490	1,845,167	10,333,088
Cases, Gals. ..	2,520,100	4,857,000	2,572,550
Gas oil—			
Bulk, Gals ...	.....	.....	463,065
Lubricating oil—			
Bulk, Gals. ...	1,063,312	.....	1,474,080
Barrels, Gals..	716,814	882,672	1,312,794
Cases, Gals. ...	39,670	88,950	171,510
Lubricating grease—			
Barrels, No. ..	.....	330	2,534
Cases, No. ...	.....	.....	4,371
Paraffin wax—			
Pounds, No. ..	862,620	1,481,040	3,427,920
Barrels, No. ..	1,455	1,473	1,311
Petroleum asphalt—			
Barrels, No. ..	.....	520	1,943
Petroleum coke—			
Bags, No.	.....	.....	775
Crude oil—			
Barrels, No. ..	2,596	3,358	6,041

The heavy export movement of kerosene is looked upon as partly seasonal, but nevertheless it is resulting in a much better tone in the price situation.

The following table gives principal bulk and case shipments of kerosene from New York by weeks since August 1, last:

	Gallons	
Week ended—	Bulk	Case
November 12	6,154,490	2,520,100
November 5	1,845,167	4,857,500
October 29	10,333,088	2,572,550
October 22	.....	2,428,750
October 15	7,249,488	3,075,000
October 8	.....	548,620
October 1	4,416,142	2,168,840
September 24	3,732,356	2,401,500
September 17	2,071,023	2,814,980
September 10	1,626,811	2,021,750
September 3	1,506,701	300,000
August 27	5,587,784	1,425,000
August 20	.....	3,234,290
August 13	3,544,297	1,922,000
August 6	4,166,569	1,860,410

Although shipments are irregular from week to week, the average in recent weeks has increased noticeably in both bulk and case goods.

Oil Receipts Hold Up

Receipts of crude and refined oil during the week ended November 12 are estimated at 480,000 bbls. daily, against 505,000 bbls. daily during the preceding week. Receipts from the Gulf Coast were 248,000 bbls. daily, against 233,000 bbls., while those from the Pacific Coast increased from a daily average of 66,000 bbls. to 102,000 bbls. Receipts from Mexico, on the other hand, fell off considerably. Averabe imports were 130,000 bbls. daily, including 112,000 from Mexico and 18, from Peru, against 206,000 bbls. daily, all from Mexico, in the preceding week. With hopes at least running high for improvement in the oil situation, it is expected the movement of oil from the Gulf Coast has probably reached the bottom for the time being. In October the movement had fallen to 246,000 bbls. daily, against a peak of 318,000 bbls. in July.

The following table shows estimated daily average receipts of crude and refined oil by water at Atlantic Coast ports from the Gulf and Pacific Coasts of the United States and imports, for the last three weeks; also monthly record for the last 13 months (figures in barrels):

	Week ended—		
	Nov. 12	Nov. 5	Oct. 29
Gulf Coast	248,000	233,000	184,000
Pacific Coast	102,000	66,000	135,000
*Imports	130,000	206,000	57,000
Total	480,000	505,000	376,000

1924—	Daily Averages by Gulf	Pacific	Months Imports	Total
October	246,000	120,000	88,000	454,000
September	270,000	104,000	101,000	475,000
August	310,000	127,000	84,000	521,000
July	318,000	85,000	114,000	517,000
June	302,000	133,000	136,000	571,000
May	276,000	122,000	144,000	542,000
April	262,000	143,000	123,000	528,000
March	201,000	137,000	130,000	468,000
February	174,0000	175,000	108,000	457,000
January	127,000	159,000	79,000	365,000
1923—				
December	184,000	153,000	119,000	456,000
November	186,000	141,000	110,000	437,000
October	200,000	164,000	133,000	497,000

*Imports week ended November 12 all from Mexico except 125,000 bbls., or daily average of 18,000 bbls., from Peru.

CHICAGO LOOKS FOR HIGHER OIL PRICES

(Continued from Page 96)

number of homes heated with oil in Chicago and its immediate suburbs is between 15,000 and 29,000. The latter figure is not for out from a recent estimate of another oil man that in the Chicago district which extends considerably farther than its immediate suburbs, there might be 40,000 oil heated buildings. The number of oil heaters is proportionately greater in the suburbs than in the residential sections of the city proper.

Fuel Oil Problem

The fuel oil situation is not entirely agreeable. There is an utter lack of unison regarding what is the market as regards prices. There is still fuel oil being sold at 95 cents to some concerns. The purchasing departments admit this both directly and by inference when they turn down bids by good refiners and marketers with whom they have done business before, of 97½ cents and $1 a barrel. On the other hand refiners are asking as high as $1.07½ for refinery fuel oil and several marketers state the least they can buy 24-26 Oklahoma fuel oil is $1.05. There is an apparent scarcity of fuel oil in the Mid-Continent refineries. The explanations have been made and they sound good but the trade is still at sea as to what is going to happen. One good judge of the market said if present conditions prevailed he saw no reason that would prevent a price of $1.25 a barrel before long. On the other hand his own selling price is right up against it when it asks $1.05 a barrel. The hope is that the sellers of the cheap fuel will be sold out shortly and leave the market to take its natural course. The scarcity of oil has resulted in quotations being made on various grades up and down the 24-26 and some of the lists are as long as the list of lubricating oils.

Of course the purchasers who are in position to do so are threatening to go back to coal and the coal men are taking new heart as they hear their secretaries at their meetings report the plants that have changed from oil to coal. One thing that causes this is the abnormally low price for this season of the year of good steam coal. On the other hand there are entire industries newly sold for oil for all time. One of the more recent converts has been the steel enameling industry which finds oil superior to coal for several reasons including a larger output and a better product.

The railroads are taking large supplies of fuel oil and the demand for bunker oil is so good it is drawing on supplies that would otherwise be sold to the industries. The latter are using a little more oil and will continue to increase their takings, especially when the business now being booked by them for delivery next spring and summer reaches the plants. Smackover crude is sparingly offered and the price is the same as refinery fuel oil on new business. Gas oil is practically unchanged in price and demand. Possibly the takings are a little larger but it waits like all the burner oils on cold weather to some degree.

Lubricants

Lubricating oils are reported to be strong in the East and the Gulf Coast. The local situation shows little change according to representatives of distributors and compounders but refiners are inclined to extend their bullish views to the lubricating oil department and some have talked of revised price lists although no advances have been reported. The sale of zero oils is the chief feature. Lubricating oils are considered one of the best indications of industrial activity and it would seem when the tide of actual production begins the demand for lubricants would show increases. As yet the building activity is largely in the planning and bid soliciting stage, the steel

(Continued on Page 125)

Officials and workers at a gusher. Well No. 27, Bibi-Eibat Field.

All-Russian Oil Syndicate

Oil Fields in Bakou (Azneft), Grosnii (Grosneft), Emba (Embaneft.)

Sells Best Quality and any Quantity of:

Lubricating Oils **Kerosene** **Fuel Oil**
Gasoline **Crude Oil** **Naphten Acid**

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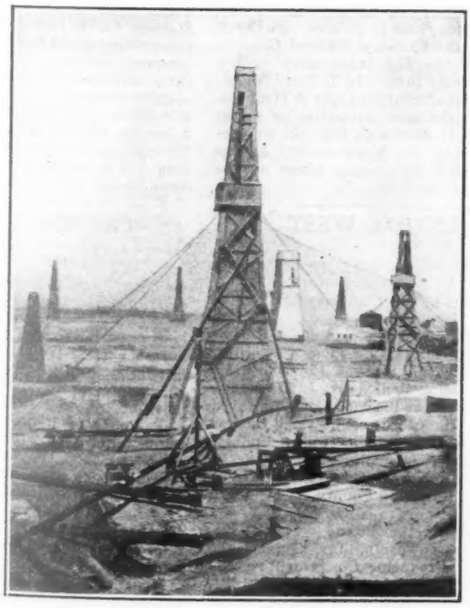
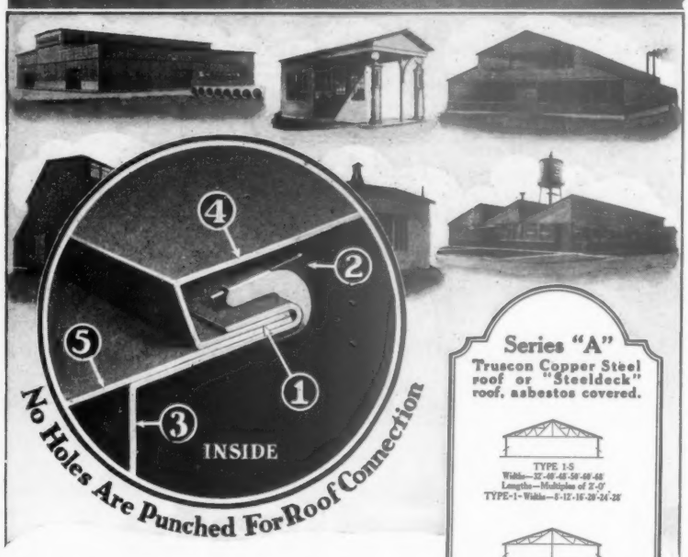


A gasser. Well No. 67 in the Sourachani Field.

A gasser. Well No. 67 in the Sourachani Field.

TRUSCON STANDARD BUILDINGS

TRUSCON STEEL CO.



A Roof That Won't Leak

Truscon Standard Building construction makes certain of roofs that are weathertight, not only when new but during the entire life of the building.

The detail of the eave connection of the sloping Truscon roof, shown above, is typical of the all-around durability and weathertightness of Truscon Standard Buildings.

1—Interlocking eave joint assures absolutely weathertight connections.

2—Positive wedge clip securely holds roof plates.

3—Side wall panel manufactured from copper steel plates.

4—Copper steel roof plate gives durability to roof.

5—Roof overhangs 9 inches at eave.

In Truscon Standard Buildings you have a complete choice of types, sizes and arrangements.

Truscon Standard Buildings are of particular advantage in the oil industry because they are non-combustible and can be easily erected in any location, even in the most remote places. Quantity production has resulted in these quality buildings at low prices. One order covers complete costs. No extras, no delays. Return coupon for free suggestions on a building for your purpose.

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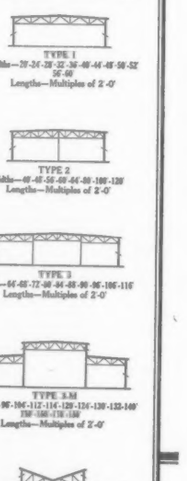
Series "A"
Truscon Copper Steel roof or "Steeldeck" roof, asbestos covered.

Series "B"
Truscon "Steeldeck" roof, asbestos covered on all series "B" buildings.



Lanterns if desired on Types 1, 2 and 3

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Send useful building book and suggestions on building to be used for.....
Series..... Type.....
Length..... Width..... Height.....
Name.....
Address.....
O.&G.J.-11-20-24

EASTERN FIELDS

(Continued from Page 48)

Beckett farm, Otter district, Braxton County. In the same district, the Carter Oil Co. has started to drill on the G. N. Bollinger farm. In Center district, Gilmer County, the Charties Oil Co. is building a rig on the G. D. Stump farm. The Philadelphia Oil Co. has started to drill on the J. W. Wilson farm, in Collins Settlement district, Lewis County. In the same district, the White Oak Oil & Gas Co. is due in the Big Injun sand on the F. L. Bond farm. In Skin Creek district, the same company is drilling on the Lyde Boggs farm. In Portland district, Preston County, the Hope Natural Gas Co. is running the 8½-inch casing at its deep test on the Joseph Gordon farm. In Union district, Harrison County, the Reserve Gas Co. has started to drill a deep test on the Chapman Smith farm.

Doddridge County

In Central district, Doddridge County, the Carter Oil Co. has rig material at a location on the W. M. Hufford farm. In southwest district, the Philadelphia Oil Co. has the road completed to a location on the Jackson Leeson farm. In Union district, the same company is rigging up on the Richard Perine farm. E. E. Zinn & Co. have started to drill on the George P. Black farm, in Union district, Ritchie County. In the same district, Baker & Smith are drilling on the John Alexander farm. The Hope Natural Gas Co. has skidded the rig on the M. V. Haught farm in Murphy district, and is rigging up on the John J. Davis farm. The same company is rigging up on the Trainer Mitchell farm. In McKim district, Pleasants County, Howard Hall has abandoned his location on the Harvey Pryor farm. In Clay district, Wood County, the New York Petroleum Co. has rigged up on Elizabeth Musser farm. Duncan & Co. have made a location on the John McDonald farm, in Court House district, Harrison County. F. F. McIntosh has started to drill on the L. A. Short farm, in Spencer district, Roane County. Three miles from production on Brush Run, Clay district, Ritchie County, the Philadelphia Oil Co. has started to drill on the J. M. Heflin farm. One-half mile south of West Milford, Grant district, Harrison County, Orlandes & West have started to drill on the Lee heirs' farm. In Sheridan district, Calhoun County, the Great Elk Oil Co. has skidded the rig and started a new hole at No. 23 on the Baker-Baughman farm.

Southwest Pennsylvania

All completions in the southwest Pennsylvania fields came in gassers. In Perry Township, the Carnegie Natural Gas Co. got one in the Big Injun sand on the Abigail Lemley farm. In Richhill Township the Manufacturers Light & Heat Co. has one in the same formation at a test on the J. & G. McGinnis farm. In Springhill Township, the Keystone Oil & Gas Co. has a Big Injun sand gasser on the Benjamin Stipes farm.

CENTRAL WEST

(Continued from Page 56)

County, with a production of 20 bbls. after a 60-quart shot at from 960 to 998 feet.

Nelson Brothers are drilling a wildcat well on the H. Raibon farm, Section 8, Barton Township, Gibson County, while a test is being drilled by J. H. Young and others on the Thomas Compton farm, Section 1, Union Township, same county.

In Wabash Township, Adams County, W. J. Heeter is drilling No. 4 on the J. L. Barr farm, Section 28. In Green Township, Randolph County, T. O. Thorp is making ready to start No. 2 J. W. Cline farm, Section 20.

In Penn Township, Jay County, the Amber Oil Producing Co. is drilling No. 3 on the N. Thomas farm, Section 21, near the small hamlet of Balbec, where the American Engineering Co. has been getting some fair sized producers.

Illinois Field

The well of the Ohio Oil Co., No. 16 on the southwest corner of the Z. E. Brandt farm, in the southwest quarter of Section 26, Johnson Township, Clark County, Illinois, and southeast of Casey, that was drilled to a total depth of 1,965 feet and found dry at that depth was plugged back to the shallow pay sand at a depth of 609 feet and given a shot, responding by a flush production of 55 bbls. The immediate territory was quite thickly drilled in about 1907 and showed some remarkably fine wells, and the finding of this well on the Brandt farm, may encourage further development work in the old field.

In Neoga Township, Cumberland County, C. Karnes is putting down a wildcat test on the F. Granchen farm, Section 8.

In Bridgeport Township, Lawrence County, the Hamilton Production Co. abandoned No. 1 on the Squire Kinsey farm and No. 7 on the S. W. Zeller farm, both in Section 8.

In Sandoval Township, Marion County, the Fox-Alsbach Corp. is drilling No. 1 on the A. E. Benoist farm, Section 4.

The outcome of the wildcat well being drilled by George Danvers on the N. Cunningham farm, Section 23, Smallwood Township, Jasper County, west of Crawford County, is being watched with interest, as it would mean a new area for development work.

Central Ohio

The Evening Repository of Canton, Ohio, has this to say: "A number of Cantonians were interested last week in the announcement from Hanoverton, in Columbiana County, tht the Miller-Waldron Co. of Columbiana, drilling contractors, had brought in a good well at that place, in Hanover Township, west of New Lisbon, where Cantonians now hold considerable acreage. The production was found in the gas sand which is believed to be an extension of the sand from the Columbiana Field, 15 miles to the northeast and perhaps much farther east in the opinion of oil men in that locality. This sand is being found at a depth of 700 to 800 feet. William Thompson, vice president of the Allegheny Oil Co., and Edward Reiser, treasurer of the Fuel Sales Co. of Canton, are heading a group of local men who are planning to drill wells both east and west of the new discovered well at Hanoverton."

The drill moves along in the gas fields as well as in the Berea sand oil section, but no other completions were reported for the week from the Central Ohio area.

Fairfield County Gasser

A 500,000-foot gas well has been drilled on the Graffis farm, in Section 11, Rush Creek Township, Fairfield County, just a little in advance of the old Bremen Field, in the Central Ohio Field. The well is owned by the Ruf-Stewart Oil & Gas Association, the gas being found at 18 feet in the sand. This company contemplates the starting of three additional wells and expects to encounter commercial oil wells in the shallow Berea sand formation, which is now a source of a considerable amount of the crude production in the Central Ohio area. The other pay sands are deep down, being the Clinton and Trenton.

CANADIAN FIELDS

(Continued from Page 44)

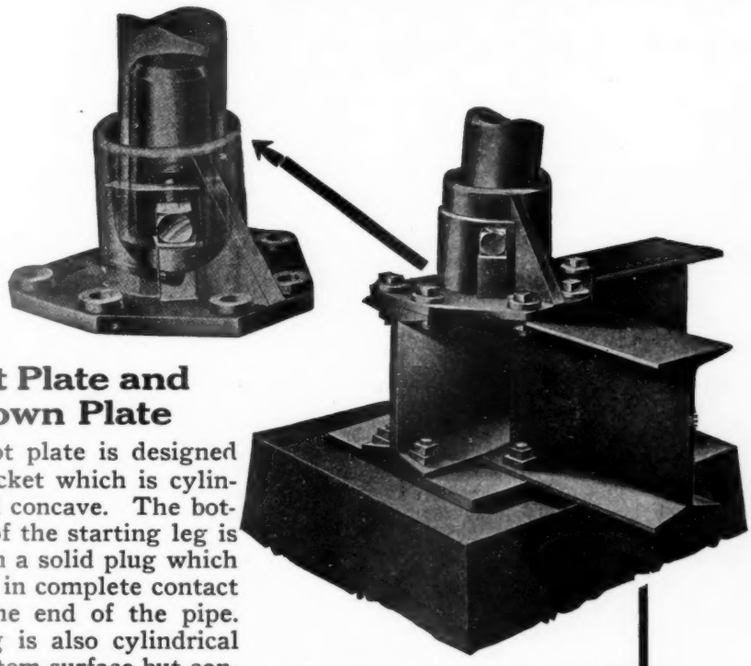
dividend. The company is increasing its capitalization from $25,000 to $50,000. A new 15,000-bbl. storage tank is being erected at the Coutts plant.

In the Irma-Wainwright Field drilling has been held up by the severe cold which interrupted the water supply from most of the wells. Maple Leaf Oil & Gas Co. No. 1, Section 24-45-8w4 is tubing; and No. 2 is rigged up on the same section. The heavy spring in the hillside which supplied water for earlier drilling has frozen and a new water well is being dug for a permanent water supply. A capacity test of No. 1 well is promised as soon as the weather moderates.

British Petroleums, Ltd. No. 5 drillers appear to be having trouble getting to the water sand; as soon as a water supply is available, the test for oil will spud in. British Petroleum's No. 2, Section 30-46-6w4 has installed a pumping outfit and will be put into production as soon as tankage has been set up. This well

STEEL SUPERIOR DERRICK

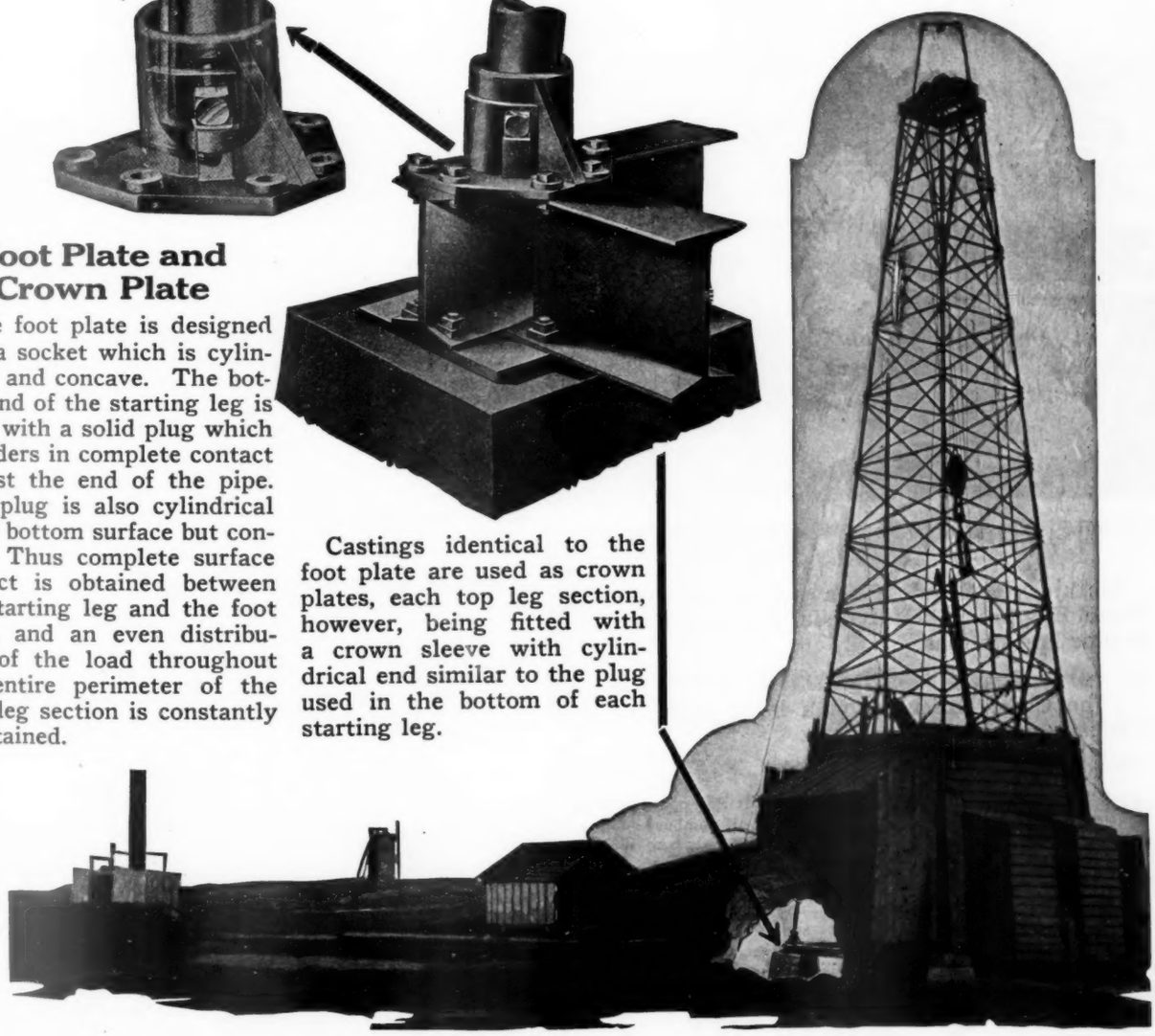
One of the Distinctive Features of Superior Steel Derricks



Foot Plate and Crown Plate

The foot plate is designed with a socket which is cylindrical and concave. The bottom end of the starting leg is fitted with a solid plug which shoulders in complete contact against the end of the pipe. This plug is also cylindrical on its bottom surface but convex. Thus complete surface contact is obtained between the starting leg and the foot plate, and an even distribution of the load throughout the entire perimeter of the pipe leg section is constantly maintained.

Castings identical to the foot plate are used as crown plates, each top leg section, however, being fitted with a crown sleeve with cylindrical end similar to the plug used in the bottom of each starting leg.



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Steel Derricks Casing Tubing Line Pipe

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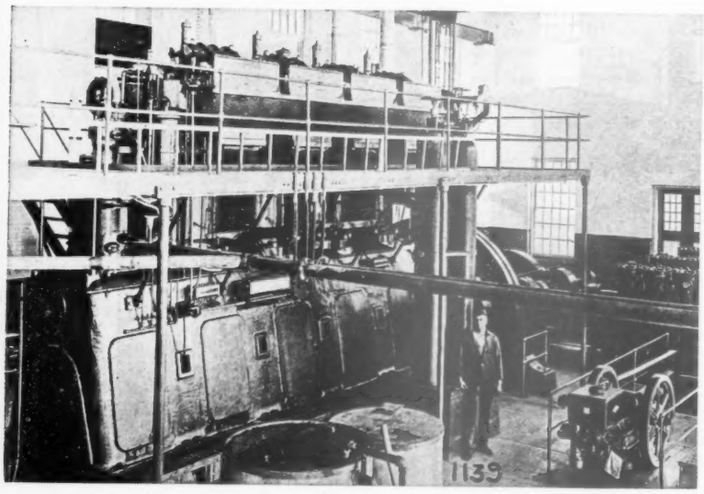
McINTOSH & SEYMOUR

DIESEL OIL ENGINES

IN SIZES FROM 20 TO 8000 B.H.P.

FOR ALL PURPOSES



665 B.H.P. Engine Driving High Pressure Pipe Line Pump

McIntosh & Seymour heavy duty four-cycle Diesel Engines make successful Pumping Units in pipe line stations.

The Chief Executive of a large pipe line company writes us as follows:

"For your information I wish to say that this company has several different makes of crude oil combustion engines, namely: ——, ——, ——, ——, and McIntosh & Seymour. Of the latter we have the most and I believe have tried them out in a more severe test than any of the others, and from my general observation and from reports and talks with our Superintendents, Engineers and Machinists, the McIntosh & Seymour is more satisfactory than any of the other makes we have in use."

Let us have your inquiries. We will be pleased to send you our latest Bulletin No. 73G

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149 BROADWAY NEW YORK CITY

330 HUMBLE BLDG. HOUSTON TEXAS

1015 BALTIMORE, AVE. KANSAS CITY, MO.

was reported good for 200 bbls. a day when it first came in more than a year ago, but till now no effort has meen made to pump it. It flowed several hundred barrels of heavy crude but later the pipe clogged with sand, which has now been broken up. Pumping equipment is being installed in British Petroleums No. 4. The heavy crude from these wells will be used for fuel for drilling at No. 4 and in the other tests drilled by this company. British Petroleums No. 3, Section 29-45-6w4 has cemented the casing to the top of the lower oil sand and as soon as the cement is hard it will be drilled out and a perforated pipe inserted. The drill cores are stated to indicate a lighter oil than at other horizons. Western Consolidated, Section 20-45-6w4 is reported unloading casing and getting ready to resume drilling with a double shift. Wainwright Oil Producers Syndicate, Section 36-44-7w4 has been housed in for winter drilling and is reported getting near to the gas sand.

Northern Alberta

In northern Alberta, S. E. Slipper and associates who recently secured a block of 25,000 acres mbetween Fort Vermillion and Vermillion Chutes on the Upper Peace River will ship in drilling equipment for a test as soon as the river is open in the spring. The territory leased is close to the wildcat test drilled by the D. A. Thomas interests in 1915, and the first sand is expected at about 600 feet.

Further tar sand deposits have been discovered in the Lac La Nonne district in northern Alberta, on the Joseph Trefoli farm. The first sand was encountered in drilling a water well at 17 feet, but later investigation showed that in some places the deposit was only a few inches below the surface. The deposit is only 12 miles from the C. N. R. siding at Gunn, and is thus convenient to shipping facilities. Samples of the sand tested at Edmonton show 74.5 per cent bitumen, which is a considerable higher percentage than in the Athabaska sands. S. C. Ells of the Geological Survey is investigating the discovery for the Government.

Thomas Draper, head of McMurray Asphaltum & Oil, Ltd., of Waterways, Alta., and of the Draper Manufacturing Co., of Petrolia, has shipped a carload of tar sands from the Waterways plant to the Draper plants at Petrolia for experimental work during the coming winter.

KENTUCKY-TENNESSEE

(Continued from Page 44)

oil rose to a height 350 feet in the hole. It is estimated at 12 bbls. Shale was topped at 260 feet and drilled through at 311 feet. Fresh water was struck at 85 feet and salt water at 10 feet above the bottom of the shale. Casing was set at 134 feet.

Warren County

Two producers, both in the new shallow pool at Richpond, south of Bowling Green, in Warren County, is the record for the week in review.

On the H. Shannon 73 acres, J. J. Fort brought in No. 1, three locations north of No. 2 Ford, for 35 bbls. flush from the shallow sand found from 442 to 453 feet. On another portion of this same farm, Wiles, Sine & Doaks' No. 3 is drilling on top of the shallow pay sand.

Caskey & Pryor's No. 5 Price, offsetting No. 3 Ford made 17 bbls. the first pumping at 464 feet.

The deep hole being drilled on the McDonald lease by D. T. Bolling was shut down on account of engine trouble at 50 feet below the black shale.

Other Completions

Allen County—Unique Oil Co.'s No. 6 Lucy Boucher, 5 bbls. at 450 feet; Peerson & Neeley's No. 1 Marvin Dodson, No. 1 farm, 10 bbls. at 270 feet; Work & Co.'s No. 2 R. S. Welsh, on Buck Creek south of Trammel, dry at 304 feet; Andrus & Garden's No. 2 Pepper, adjoining the Walker lease in the Walker Pool, was dry at 335 feet. Shale was found from 200 to 250 feet. In the Keen Pool extension, unknown parties' No. 1 T. Hinton was abandoned at about 450 feet.

In the Owensboro district, the wildcat of Cowling and others on the W. S. Howard farm at Oklahoma was dry in all known sands of the district.

In the Hurricane Pool, 4½ miles south of Pellville, C. A. Leeper's No. 5 Lone Helm was dry in the Barlow sand. It was 350 feet north of No. 4 Helm and offset No. 2 Skinner of the Kentucky Oil Co.

Robert Stead's No. 1 Widow Fletcher, north of Renox Creek, in Cumberland County was reported dry and abandoned at an approximate depth of 600 feet.

NORTH CENTRAL TEXAS

(Continued from Page 54)

1 Bond, making oil at 2,045 feet; same company's No. 2 Bond, drilling at 1,900 feet; same company's No. 3 Bond, drilling at 900 feet; Wells and others' No. 1 Waggoner, making oil at 2,525 feet; same company's No. 2 Waggoner, showing oil at 885 feet.

Baylor County: Crittendon and others' No. 1 Hawkins, drilling at 1,875 feet; Dallas Oil Co.'s No. 1 Shawver, drilling in shale at 1,845 feet; Glazier and others' No. 1 Shawver, drilling at 760 feet; Magnolia Petroleum Co.'s No. 2 Portwood, drilling at 820 feet; Moore and others' No. 1 Fancher, showing gas at 965 feet.

Clay County: Evans and others' No. 1 Culver, drilling at 150 feet; Finley Development Co.'s No. 1 Scott, drilling at 1,060 feet; Sullivan and others' No. 2 Scott, drilling at 1,190 feet; Summers and others' No. 1 Parker, drilling at 975 feet; Sheldon and others' No. 1 Boddy, jarring tools at 1,375 feet.

Montague County: Guarantee Fuel Oil Co.'s No. 1 Jordan, drilling at 3,350 feet; Petroleum Producers Co.'s No. 1 Howard, spudding; Texhoma Oil & Refining Co.'s No. 1 Cato, drilling at 1,500 feet; The Texas Co.'s No. 2-A Gist, drilling at 915 feet.

Cooke County: Big Injun Oil & Gas Co.'s No. 1 Davis, showing oil at 3,525 feet.

Denton County: Galloway and others' No. 1 Dollinger, drilling at 420 feet.

Throckmorton County: Hamilton and others' No. 1 Odell, drilling at 1,410 feet; King and others' No. 1 Broyles, fishing at 920 feet; Larkin and others' No. 1 Conger, drilling shale at 1,431 feet; same company's No. 1 Richards, drilling at 960 feet; Shamrock Oil Co.'s No. 1 McKnight, drilling at 2,360 feet; Whatley and others' No. 1 Parrott, fishing at 800 feet.

Stonewall County: Nance and others' No. 1 Ward, drilling at 2,780 feet.

Garza County: Blackwell and others' No. 1 Boren, showing oil at 2,430 feet.

Shackelford County: Humble Oil & Refining Co.'s No. 1 Green, drilling at 500 feet; Magnolia Petroleum Co.'s No. 4 George, drilling at 2,310 feet; McMahon and others' No. 2 Lynch, fishing at 3,920 feet.

Palo Pinto County: Hughes and others' No. 1 Belding, drilling at 2,009 feet; same company's No. 2 Weldon, drilling at 2,010 feet; Phillips and others' No. 1 Stringer, drilling at 1,090 feet; Pender Producing Co.'s No. 2 Slemmons, drilling in lime at 2,400 feet.

Johnson County: Culberson and others' No. 1 Pullen, drilling at 290 feet.

Somerville County: Glenrose Oil & Gas Co.'s No. 1 Buzon, drilling at 2,650 feet.

Callahan County: Byron Union Oil Co.'s No. 1 Hennessey, drilling in hard lime at 4,200 feet; Dudley Oil & Gas Co.'s No. 1 Moore, swabbing water at 1,850 feet; Pope and others' No. 4 Bryson, fishing at 2,060 feet; Prewitt and others' No. 1 George T. Crane, drilling at 1,000 feet; same company's No. 2 George T. Crane, drilling at 100 feet; same company's No. 1 W. W. Crane, drilling at 1,100 feet; same company's No. 1 White underreaming at 1,800 feet.

Taylor County: Sanger Oil & Refining Co.'s No. 1 Hollingshead, drilling at 200 feet.

Mitchell County: Eddleman and others' No. 1 Gist, drilling at 2,850 feet; Humphreys and others' No. 1 Coleman, drilling in lime at 3,015 feet; California Co.'s No. 1 Clark, drilling at 1,325 feet; same company's No. 5 Miller, drilling at 1,300 feet; same company's No. 7 Abrams, drilling at 1,995 feet; Morrison

4 speeds for the drum of a no. 6.

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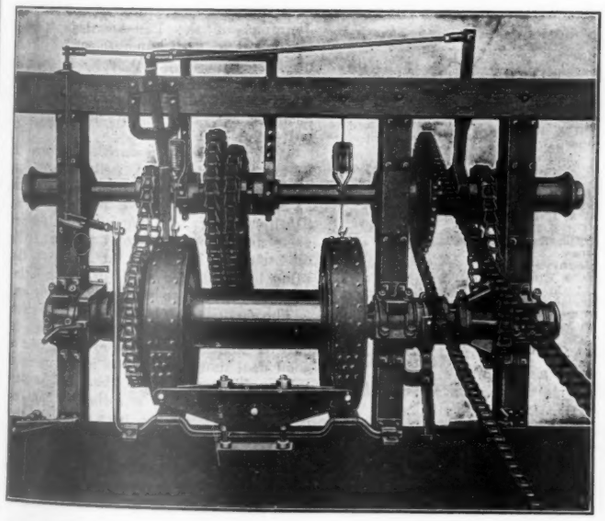

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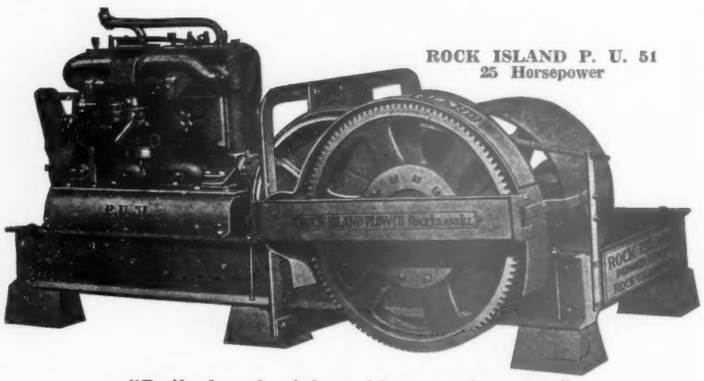

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and others' No. 1 Kynerd, drilling in lime at 2,720 feet.

Sterling County: Cooperative Lease & Development Co.'s No. 1 Douthit, drilling at 1,820 feet; Chicago Texas Oil & Gas Syndicate's No. 2 Durham, showing oil at 1,406 feet; Fidelity Oil Co.'s No. 1 Hull, cleaning out at 1,710 feet; Ford and others' No. 1 Foster, drilling at 150 feet.

Brown County: Anderson and others' No. 1 Wheeler, showing oil and gas at 2,695 feet; Gulley and others' No. 1 Cox, drilling at 300 feet; Honea and others' No. 2 DeBusk, drilling at 2,205 feet; Moore and others' No. 1 Williams, drilling at 570 feet; New Era Oil Syndicate's No. 3 Prather, spudding; Slick and others' No. 1 Chambers, drilling at 1,330 feet; Stone and others' No. 1 Gunn, drilling at 1,185 feet.

Comanche County: Cox and others' No. 1 Sturkie, drilling at 1,550 feet; Fain and others' No. 1 McKeehan, showing oil at 2,825 feet.

Irion County: Orient Oil Co.'s No. 1 Suggs, drilling at 1,250 feet.

Reagan County: Arkansas Fuel Oil Co.'s No. 1 University, drilling in lime at 2,650 feet; Big Lake Oil Co.'s No. 13 University, drilling at 2,525 feet; same company's No. 14 University, fishing for casing at 1,905 feet; same company's No. 15 University, drilling at 26295 feet; Californin Co.'s No. 1 University, drilling at 200 feet; Crockett Drilling Syndicate's No. 1 University, drilling in lime at 2,525 feet; Texon Oil & Land Co.'s No. 1, Group 2, University, cleaning out at 3,565 feet.

PRODUCTION REPORT

Week Ending November 13, 1924

Burkburnett	
Barkley & Meadows	1,055
Humble Oil & Refining Co	485
Gulf Production Co.	320
Magnolia Petroleum Co.	3,020
McMahon Oil Co.	360
Panhandle Oil & Ref. Co.	345
Prairie Oil & Gas Co.	30
Sinclair Oil & Gas Co.	80
The Texas Co.	515
Texhoma Oil & Ref. Co.	450
Miscellaneous	10,340
Total	17,500
Electra	
Empire Gas & Fuel Co.	1,300
Humble Oil & Ref. Co.	185
Griswold Oil Co.	265
Gulf Production Co.	910
Magnolia Petroleum Co.	4,645
McMahon Oil Co.	200
Panhandle Oil & Ref. Co.	90
The Texas Co.	4,110
Texhoma Oil & Ref. Co.	1,960
Miscellaneous	6,275
Total	19,940
Iowa Park, Etc.	
Griswold Oil Co.	60
Gulf Production Co.	35
Humble Oil & Ref. Co.	20
Panhandle Oil & Ref. Co.	70
Texhoma Oil & Ref. Co.	55
Miscellaneous	4,105
Archer County—	
Empire Gas & Fuel Co.	915
Griswold Oil Co.	620
Gulf Production Co.	300
Humble Oil & Ref. Co.	205
Magnolia Petroleum Co.	325
Panhandle Oil & Ref. Co.	2,305
Prairie Oil & Gas Co.	1,280
The Texas Co.	1,045
Texhoma Oil & Ref. Co.	2,820
Miscellaneous	21,725
Petrolia—	
Gulf Production Co.	55
Magnolia Petroleum Co.	20
The Texas Co.	60
Miscellaneous	210
Total	36,230
Stephens County	
Empire Gas & Fuel Co.	75
Gulf Production Co.	1,385
Humble Oil & Ref. Co.	1,040
Magnolia Petroleum Co.	800
Mid-Kansas Oil & Gas Co.	2,240
Prairie Oil & Gas Co.	1,110
Sinclair Oil & Gas Co.	115
The Sun Co.	325
The Texas Co.	1,950
Texas Pacific Coal & Oil Co.	1,175
Miscellaneous	7,260
Total	17,475
Eastland County	
Gulf Production Co.	390
Humble Oil & Ref. Co.	100
Magnolia Petroleum Co.	525
Panhandle Oil & Ref. Co.	370
Prairie Oil & Gas Co.	610
Sinclair Oil & Gas Co.	445
The Texas Co.	285
Texas Pacific Coal & Oil Co.	1,030
Miscellaneous	2,565
Total	6,320
Other Fields	
Strawn—	
Texas Pacific Coal & Oil Co.	290
Miscellaneous	530
Moran—	
Empire Gas & Fuel Co.	35
Humble Oil & Ref. Co.	385
The Texas Co.	150
Texhoma Oil & Ref. Co.	160
Miscellaneous	2,225
Coleman County—	
Miscellaneous	75
Brown County—	
Miscellaneous	710
Comanche-Eastland—	
Humble Oil & Ref. Co.	215
Magnolia Petroleum Co.	1,165
Mid-Kansas Oil & Gas Co.	445
Sinclair Oil & Gas Co.	35
The Texas Co.	180
Texas & Pacific Coal & Oil Co.	150
Miscellaneous	3,300
Young County—	
Gulf Production Co.	90
Sinclair Oil & Gas Co.	460
Panhandle Oil & Ref. Co.	210
The Texas Co.	65
Miscellaneous	2,885
Mitchell County	1,570
Reagan County	7,365
Jack County	30
Scurry County	10
Carson County	900
Hutchinson County	185
Callahan County	1,475
Wilbarger County	2,600
Total	27,795
Total this week	135,360
Total last week	134,955
Gain	405

CALIFORNIA FIELDS

(Continued from Page 40)

with an 8¼-inch oil string carrying 702 feet of 80-mesh screen landed on bottom. No. 101 was a somewhat shallower well, only 3,550 feet of hole being required and a similar amount of 8¼-inch. The oil in each case tests 17.8 degrees and shows a cut of 5 per cent. The company's deep test, No. 1 Francis, is drilling in a sticky brown shale at 6,023 feet and, in addition to being the company's deepest hole, it has the distinction also of being the deepest test drilled in the field to date.

Only one of the Standard's new wells, No. 22 Marble fee, was a good one, the other showing an excessive water content in the production. No. 22, a 130-bbl. pumper, came in from 3,790 feet after being finished with a 6¼-inch liner carrying 385 feet of perforated. No. 21 was drilled to 3,780 feet and finished with a 6¼-inch liner carrying 495 feet of perforated. The initial pumping was 75 bbls. of fluid, 10 per cent of which was water. No. 14 Joughin at 3,525 feet, No. 24 Marble fee at 3,800 feet and well No. 1 on Marble lease No. 2 gives indications of increasing the company's daily production in the near future. No. 1 Kinsey-Jennings of the Pan-American, proved somewhat of a disappointment when put on the beam at 3,790 feet. It pumped 100 bbls. of fluid, 30 per cent of which was water and, although the output is cleaning up, the improvement has been quite slow.

The Petroleum Securities secured a 65-bbl. pumper when well No. 16, on Kleinmeyer lease A was put on the beam at 3,860 feet after being finished with an 8¼-inch oil string. The oil tests 16.2 degrees and shows a cut of 4 per cent. The oil string is being run in No. 8 on the same lease, drilled to 3,810 feet, and indications point to an early completion.

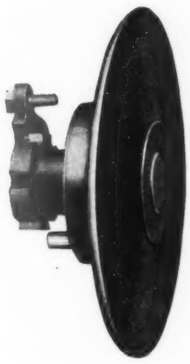
The comparatively small output which these Kleinmeyer wells have yielded to date is another concrete example that a good deal more money has been expended in the Torrance Field than has so far been taken out. It is estimated that at least $25,000,000 has been put into the field for development purposes and that less than 20,000,000 bbls. have been taken out. The field, however, will probably be a long lived one and the production constant after the bottom has been reached.

The Petroleum Midway's No. 1 Carlson resulted in a 34-bbl. pumper when put on the beam, the oil testing 18.6 degrees and showing a cut of 10 per cent. It came in from 3,825 feet and required a 6¼-inch oil string carrying 310 feet of 60-mesh screen. The Lora J. Oil Co. has not yet had any encouragement from its deep test, which is drilling in a sandy shale at 4,450 feet and the prospect of securing production is not any too promising. The Shell's No. 2 Kettler at 5,084 feet in the east end of the field is equally as discouraging as the C. C. M. O.'s No. 1 Francis and the Lora J.'s deep test. It is expected that the McKeon Drilling Co. will put its well No. 2 on production during the coming week and the R. K. Drilling Co.'s No. 1 McKessick should follow shortly after. The Superior's No. 54 Torrance also looks good for production and, although it made a short flow of 20 minutes' duration before sanding up, it will probably be put on the beam.

A check of drilling operations in the

U.S. TOOL CO. LONG BEACH CAL.

Eliminates Under-Reaming



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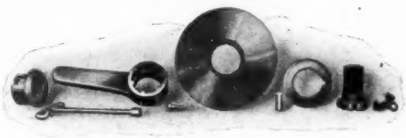

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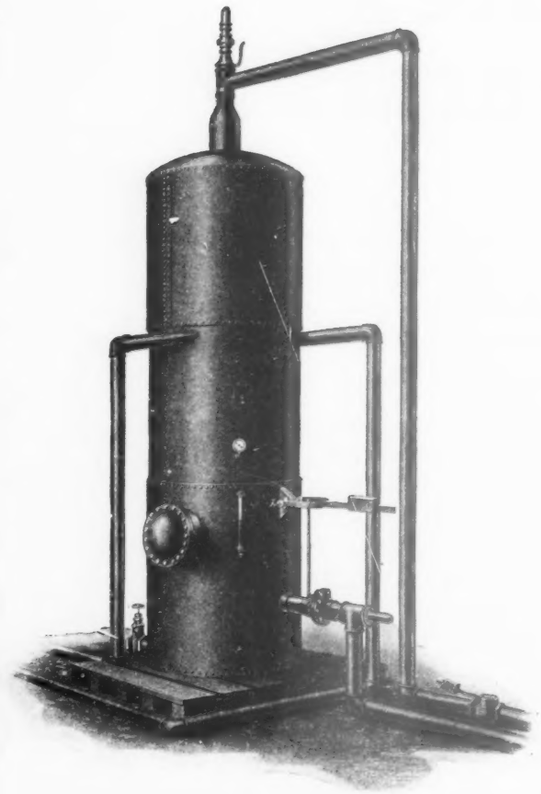

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Long Beach Field does not bring to light any wells which give indications of coming in big. Should this condition continue to exist during the next 65 days, the field will undoubtedly show a substantial drop during this period. The only well put on production this week was the Henderson Petroleum Co.'s No. 1 Hoover, which was cleaned out to 3,755 feet. When returned to production it pumped 200 bbls. of somewhat dirty oil. E. L. Blanton finished his No. 1 at 4,614 feet and, although it was not put on production, it should be tanking oil within the next few days. Lou Anger's No. 3 at 4,650 feet and the Shell Oil Co.'s No. 7 Coseboom at 4,060 feet are in the same condition and give promise of being on production shortly. W. R. Ramsey drilled out his No. 1 McNaughton but recemented when the job was found to be wet. The Petroleum Midway has reduced its development work to a minimum and is at present drilling only two new wells in the Long Beach Field and a similar number at Torrance and Santa Fe Springs.

The only development work of interest at Huntington Beach was the completion of the Golden Dome Oil Co.'s No. 1 Ward by the Union Drilling & Petroleum Co. and, although the well was not actually put on production, it should be given a test some time during the coming week. The hole, which was full of junk, had stood idle for some time before the latter company undertook to put the well on production. It was cleaned out and redrilled to 3,320 feet and a string of 4¾-inch landed at 3,215 feet. The Petroleum Midway is still working with Twin Two on Mattern Lease No. 2 at Santa Fe Springs and the company expects to overcome the water trouble which prevented the completion of a 2,500-bbl. well a few weeks ago. The Shell has not done any work on its deep test, No. 6-A Slusher, for several weeks and it is unknown just what the company will do with the 6,113 feet of hole made.

Miscellaneous Drilling

The McGinley Oil Co. finished a 100-bbl. pumper when its No. 18 was put on production in the Montebello Field. The output, which tests 22.9 degrees and shows a cut of 5 per cent, is coming from 3,610 feet. Recent developments in the Rideout Heights section of the Whittier Field tends to confirm the theory advanced several months ago that the field would be limited in area and a rather treacherous one in which to drill. There have been no wells finished in this particular section since the O'Donnell Refining Co. completed its No. 6 Rideout in December of last year. The Standard reports 5,086 feet of hole in its No. 1 Patton and indications are not any too encouraging for production. The holes of the Associated, Mohawk, Pan American, California Royalties and Petroleum Midway are all in a rather uninteresting condition, some standing idle and others held up with fishing jobs.

The Chicsan Oil Co.'s No. 1 Bradford focussed the attention of operators on the Richfield district and opened for discussion the possibility of a new deep sand existing at this point. The company's new well, located in the eastern part of the field, is approximately 65 feet deeper than any other drilled in the immediate vicinity. It was carried to 4,712 feet and finished with a 6¼-inch oil string including 675 feet of perforated. On a flow test, it made 285 bbls. in 11 hours, the oil testing 18.8 degrees. When opened up, the well showed a cut of 50 per cent water and sand but the foreign matter has since declined to 15 per cent and the company has hopes that the production eventually will clean up entirely. With the reduction in the water content, the gravity of the oil has improved and now tests 21.3 degrees.

The company, which has a little over 35 acres under lease, drilled the first well into production in five months and four days. The company's geologist is so confident that clean production will be secured that he has mapped a location for well No. 2 300 feet east of the company's new well. The Interstate Oil Co., one of the pioneers in the Newport area, has plugged back its No. 1 Newport from 3,332 feet to 1,100 feet and will attempt to produce from the heavy tar zone around the 800-foot level. Numerous attempts have been made to secure commercial production from this zone, but only with fair success. The South Basin Oil Co. at present has one well capable of making a small amount of heavy oil. Because of its inferior quality, most of the production to date has been used for road building purposes only.

The Pan American started work on its first well in the new Inglewood Field and, although drilling has not yet actually started, the company should spud in during the coming week. The boilers are being set and the rigging up process should be finished within the next few days.

The Standard is rigging up No. 3 on Los Angeles Investment Lease No. 1 and this well should be in about the same time that the Pan American begins its new work. The former company's No. 1 Stocker is going ahead nicely and shows 1,900 feet of hole, the formation being a brown shale streaked with gray sand. None of the Standard's other wells in the general area, however, showed any improvement. No. 1 Farrell is still dry at 5,750 feet, as is No. 1 on Los Angeles Investment Lease No. 2 at 4,275 feet and No. 1 Potter-Smith at 4,800 feet.

Pass Up Showing

The Mohawk Oil Co. has decided that the gas and oil found at 1,900 feet is not commercially productive and will pass up this showing and resume drilling in the hope that something a little better may be picked up later. The McFadden-McDowell-Bering well at Hawthorne, Neither the Associated Oil Co.'s No. 1 which experienced a gas blowout at 1,104 feet a few weeks ago, is being abandoned and the rig skidded to a new location. McNally at 5,880 feet nor the Standard's No. 1 Culp at 4,998 feet, in the La Mirado-Los Nietos section, showed any improvement during the week and both look like dry holes. The Superior Oil Co. has determined to its satisfaction that its North Whittier Heights wildcat was not productive at 3,364 feet and has resumed drilling. The gas and oil showings found in this test looked very promising for a time but commercial production was not obtainable and the well is now being pushed ahead at 3,500 feet.

An early abandonment is expected in the Wucher-Gray Oil Co.'s No. 2 in the San Joaquin Hills and the three years spent in prospecting this lease have gone for naught. The Shell Oil Co.'s No. 1 Bryant at Seal Beach continues to make 60 bbls. of oil and 1,400 bbls. of water daily from 4,620 feet. No. 2 Bryant is drilling ahead in a sticky shale at 2,010 feet. No. 1 Bixby shows a sandy shale at 5,190 feet.

Seal Beach Looks Good

Seal Beach looks like one of the California's future oil fields, it being generally admitted that the Shell's No. 1 Bryant is an edge well and the water accompanying the production is due to an edgewater condition. Just how soon the real test will be drilled, however, is unknown, as the company having the acreage under lease is not desirous of pushing development work at the present time. The Standard Oil Co. ran into a fishing job in its San Emidio wildcat on Section 28-11-22 at 2,820 feet. In the same district on Section 5-10-22, the company shows 475 feet of hole in another test. The formation seems to be granite however, and in view of this discouraging condition, it is unknown whether the company will go ahead or not. The General Petroleum is making rather slow progress in its Commanche Point wildcat on Section 31-12-18 and reports only 2,651 feet of hole. The Standard Oil Co.'s test at Lost Hills, Section 5-27-20, is standing cemented at 2,779 feet. The Barnsdall is making preparations to put its No. 2 on a production test and the company has a good chance of finishing a producer in this, its McKittrick front test on Section 6-20-22. The Union is drilling the cement out of its Rio Bravo wildcat on Section 4-29-25 and should begin making new hole within the next day or so.

The only development of interest on the Kern River Bluffs, south of Bakersfield, was the continuance of gas and slight

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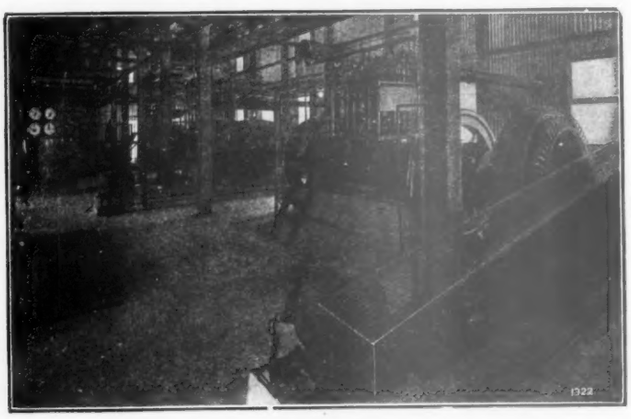

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The record of the Hope Company, as engineers and contractors in oil and natural gas, is a record of achievement satisfactory and profitable to Hope clients.

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The reputation of the Hope Company has been built by a conscientious fulfilment of its obligations to its clients and of its promises as to completion dates and performance.

HOPE SERVICE

Engineering counsel, design, construction and contracting—in pipe lines for oil and gas, oil pumping stations, gas compressing and boosting plants, gasoline recovery systems, city and intercity gas mains.

UNIT RESPONSIBILITY

HES-16

ENGINEERS CONTRACTORS HOPE Engineering & Supply COMPANY DESIGNERS MANUFACTURERS

MT. VERNON, OHIO, U. S. A.

colors in the Central Oil Syndicate's well on Section 36-28-28 at 2,436 feet. The Pan American has not yet recovered from the fishing job which developed a month or so ago in its test on Section 13-29-29. The St. Helens, on Section 14-29-28, has been shut down for several days because of motor trouble. The shell has staked a location for its first test on Section 33-30-29 in the Weed Patch area and should begin work on the first rig before the close of the present week. It is reported that the Shell has taken over a 4,000-acre lease, heretofore held by Leonard Jones, half of which will be developed on a one-sixth royalty and the other half on a fifty-fifty basis. The Main Oil Co. at Wasco, on Section 28-27-24, is drilling ahead in a blue shale at 3,860 feet and, although there is a little gas present, no other indications of oil have yet been found.

E. J. Miley's No. 1 Kreyenhagen on Jacalitos Dome near Coalinga, Section 7-22-16, is still held up with a fishing job and as a result no additional hole has been made. The Snowolene, on Section 22-21-15, is being delayed with a caving hole at 3,450 feet. The General Petroleum is drilling ahead slowly in its Kettle Hills wildcat, Section 28-22-18, but has not yet found the pay. Hugh McPhail, Section 13-24-18, is the only other operator working in this area, although it is expected that the Bolsa Chica, on Section 30-23-19, and the Marland, on Section 12-21-17, will resume work at any time. E. J. Miley secured a very encouraging showing of gas in his No. 1 Ojai in Ventura County at 4,045 feet and he has a fair chance of securing commercial production. It is reported that Miley has secured a lease on the 4,500-acre Hobson tract, 10 or 12 miles east of Ventura, and that plans are being formulated for its development. Several years ago the Eddystone Oil Co. drilled a shallow hole on this property, but it was later abandoned. The General Petroleum is abandoning its No. 1 Bradley in Santa Barbara County on Section 6-9-33 as the result of a very complicated and difficult fishing job. It is believed that the company will skid the rig and make another attempt. The Oakridge Oil Co.'s No. 1 Mahoney in San Luis Obispo County, Section 4-25-12, is reported as drilling at 2,666 feet, the formation a blue shale and progress slow.

Field Operations

Oil field operations reported to the State Oil and Gas Supervisor show 17 new wells started, as compared with 23 during the previous week, bringing the total for the current year to date to 1,213 as compared with 1,235 at the same time last year. Of the 17 notices to drill filed this week, one was for a well in Riverside County, 1 each for wells in Inglewood, Rosecrans, Torrance, Newport, Santa Fe Springs and Dominguez fields, 2 in Ventura County, 1 in Tulare County, 1 in San Mateo County and 6 in the fields of Kern County. There were 23 water tests made, 6 more than during the previous week. Deepening or redrilling jobs totaled 22, as compared with 17 during the preceding week. There were 10 holes abandoned, 3 at Huntington Beach, 2 at Torrance, 1 each at Long Beach, Richfield, Lost Hills, Maricopa and Ventura. Permits were issued for the following new wells:

Torrance
Location, Company, Well—
C. C. M. O. Co.—
9-4-14 Del Amo 102.
Santa Fe Springs
General Petroleum Corp.—
5-3-11 Santa Fe 45-A.
Rosecrans
7-3-13 Roy W. Perkins 1.
Dominguez
Shell Co.—
34-3-13 Manuel 5.
Inglewood
Standard Oil Co.—
17-2-14 L. A. Investment lease 1, 3.
Newport
28-6-10 N. E. Guthrie 1.
Riverside County
3-3- 2 L. R. Clark 1.
Ventura
Shell Co.—
28-3-23 Gosnell 9.
9-3-23 C. E. Brain 1.
San Mateo County
10-7- 4 LaHonda Oil Fields Assn. 2.
Elk Hills
15-30-24 Pacific Oil Co. 5.
Pan American Pet. Co.—
6-31-25 Crampton 4-B.
1-31-24 Crampton 3-I.
Midway-Sunset
12-11-24 General Pet. Corp. 70-A.
26-31-22 Mocal Oil Co. 13.
10-11-24 St. Anthony Oil Co. 1.
Tulare County
15-22-27 Shannon Oil Co. 2.

Abandonment notices were filed on the following holes:

Torrance
Julian Pet. Corp.—
23-4-14 Bell Johnson 4.
Standard Oil Co.—
22-4-14 Weston 1.
Huntington Beach
Associated Oil Co.—
11-6-11 Huntington Beach 7.
34-5-11 Fowler 1.
2-6-11 Miley-Keck Oil Co. 14.
Richfield
Petroleum Midway Co., Ltd.—
29-3- 9 Yarnell 2.
Ventura
7-3-19 H. E. McLain 3.
Lost Hills
33-25-20 California Maine Oil Co. 1.
Sunset
18-11-23 General Pet. Corp. 226-A.

OKLAHOMA FIELDS

(Continued from Page 38)

300 feet in No. 3 Grant, CSL SW NW, Section 3-15-11. Jackson & Wise have commenced drilling No. 5 Grayson, NE cor. NW SW SW, Section 3-15-11. Webster and others' No. 5 Grayson, NE cor. SW NW SW, Section 3-15-11, made a 35-bbl. well after a shot in sands at 1,968-90 and 1,997-2,008 feet. Glapsy and others will drill deeper in No. 1 Haines, SW cor. SE, Section 11-15-12, now at 1,910 feet. The Glenz Petroleum Co. is drilling below 500 feet in No. 1 Grayson, C E half SW SE, Section 11-15-12. A. W. Cline and others' No. 5 Beggs, NW cor. SW SE, Section 33-15-14, was drilling below 1,400 feet; W. R. Summerville was drilling below 500 feet in No. 2, CEL NE NW, Section 28-14-14. The Mountain State Oil Co. has a rig up for No. 2 Roberts, SE cor. NW SW, Section 28-13-11, and E. R. Black a rig up for No. 1 Harjoche, NE cor. SW SE, Section 28-13-11. The Utah Oil Co. got a 50-bbl. well in No. 3-A Scott, NW cor. SW SW SE, Section 15-13-14, from pay at 1,941-44 feet. A. G. Hazlett was drilling below 500 feet in No. 1 Scott, CEL NE NE, Section 23-13-14.

South and Southwest

The Oklahoma Natural Gas Co. has a rig up for No. 2 Ready, NW cor. SE SE, Section 2-4n-8w, Grady County.

Malernee and others will drill deeper in No. 1 No Name, C N half SW NE Section 16-1n-3w, Garvin County, now at 2,453 feet.

The Carter Oil Co.'s No. 1 Seay, NW cor. SW SW, Section 34-6s-5w, Jefferson County, is a 250-bbl. well in sand at 1,344-1,348 feet.

In Grady County, the Atlantic Oil Producing Co.'s No. 1 McCoughtry, SE cor. SW SE NW, Section 35-5n-8w, was showing 9,000,000 feet of gas with a rock pressure of 480 pounds at a total depth of 1,430 feet, but the well was to be drilled deeper. Hagerling and others have tools in for No. 2, C NE NE NW, Section 35-5n-8w.

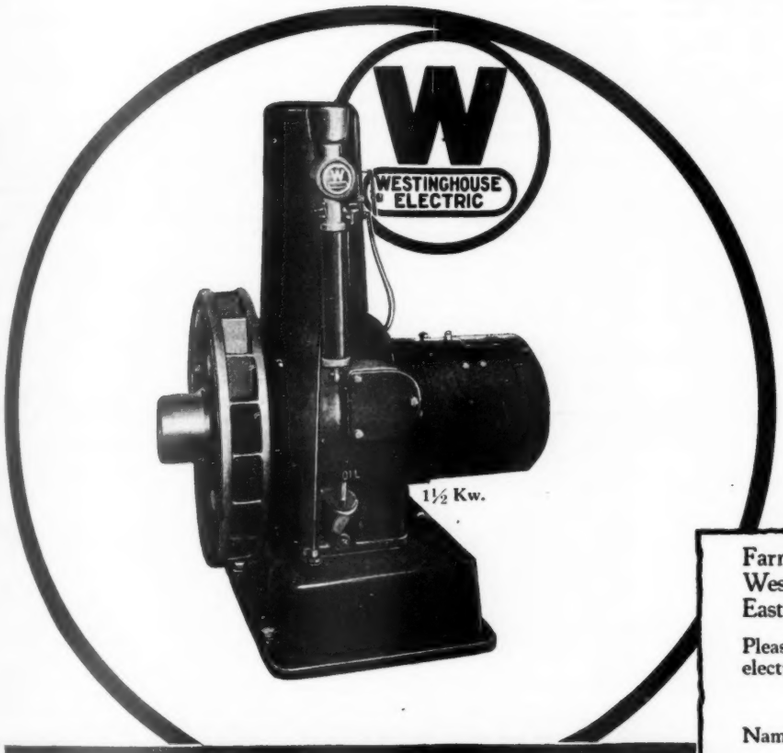
In Stephens County the Magnolia Petroleum Co. has a rig up for No. 16 School Land, SE cor. SW SE NE, Section 32-8-8; Anderson & Schoonmaker, a rig up for No. 1 Russell, CSL N half S half NE, Section 13-2s-8w; Magnolia Petroleum Co.'s No. 2 Folsom, SW cor. Section 15-2s-7w, drilling below 500 feet; same company's No. 9 Wilson, C S half SE SE, Section 17-2s-7w, tools in.

The Humble Oil & Refining Co. drilled a failure in its No. 1 Seay, C NE NW SE, Section 1-7s-6w, Jefferson County, abandoning the test at 3,335 feet.

In Carter County, the Twin State Oil Co. has started drilling No. 1 Poland, C NW NW SW, Section 27-1s-3w; the Healdton Oil & Gas Co. is drilling below 600 feet in No. 2 Bogle, C NE NE SE, Section 6-3s-2w; Wolverine Oil Co.'s No. 35 Dillard, C SW SE, Section 22-4s-2w, drilling deeper at 2,400 feet. In the Brock Field in Carter County, the Amerada Petroleum Corp.'s No. 5 Gardner, C SW NW NE, Section 20-5s-1e, was drilling below 880 feet; same company's No. 1 Blow, CEL NW, Section 28-5s-1e, drilling below 300 feet; same company's No. 1 Baptiste, C N half NE, Section 35-5s-1e, was dry and abandoned at 1,775 feet. The company had machines in for No. 2 Clay, SW cor. NW SW NW, Section 28-5s-1e, and for No. 3 Clay, C N half SW NE, Section 28.

Electric Light at Night

THE Westinghouse self-contained electric generating plant provides safe and convenient light for oil and gas well projects. It requires no batteries and operates on either gasoline, kerosene or natural gas.



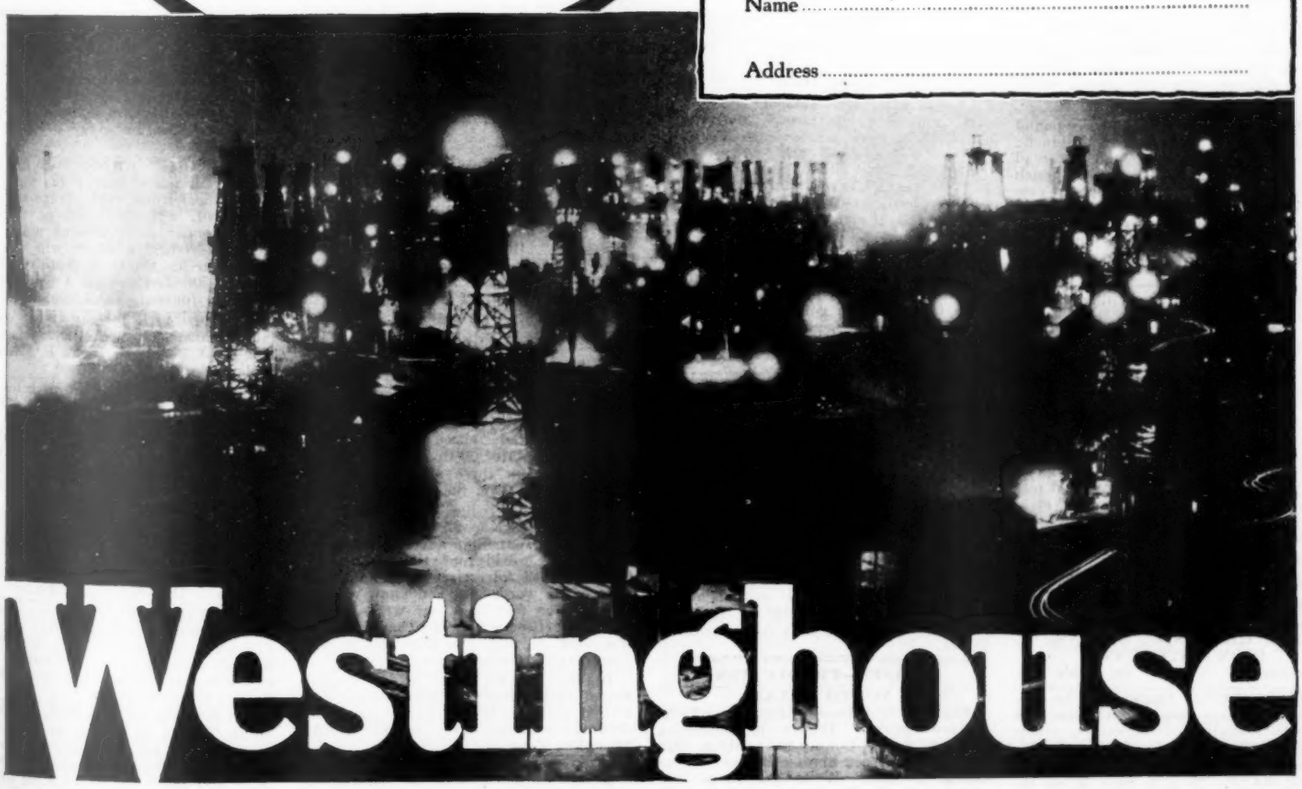
Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of
the United States and Foreign Countries

Farming Section
Westinghouse Electric & Manufacturing Co.
East Pittsburgh, Pa.

Please send me leaflet descriptive of your Type E-66 electric generating plant for oil and gas wells.

Name .....

Address .....



Westinghouse

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

MAIL your advertisement now. It will be published next week. Cash with order.

FOR SALE—EQUIPMENT

SPECIAL SALE OF TRAILERS

Roller-bearing steel trailers; 1½- and 2-ton capacity; complete or parts for same at bargain prices; come and see them. Reedy Auto Truck & Trailer Co., 900 N. Xanthus, Tulsa, Okla.

AT A BARGAIN PRICE—2,400 feet of 6⅝-inch well casing, 27 lbs. per foot; 120 feet 8⅝-inch well casing; 60 feet of 12⅝-inch, and 2,200 feet of tubing and rods; 100-bbl. tank; 600 feet of line pipe. Woking barrel, casing head, standard derrick complete. Will price f.o.b. car, Liberty Center, Ohio. Write C. R. Ulrich Co., 736 Nicholas Building, Toledo, Ohio.

ADVERTISING RATES

The cost of advertising in the Classified Wants Section is very reasonable. It costs 25 cents a line for the first insertion and 15 cents a line for each following insertion. Six words usually make a line. Cash with the order, please.

Use this table to figure the cost of advertising in the Classified Section. Keep it for reference:

	One Time	Two Times	Three Times	One Month
3 lines	$ .75	$1.20	$1.65	$2.16
4 lines	1.00	1.60	2.20	2.80
5 lines	1.25	2.00	2.75	3.50
6 lines	1.50	2.40	3.30	4.20
7 lines	1.75	2.80	3.85	4.90
8 lines	2.00	3.20	4.40	5.60
9 lines	2.25	3.60	4.95	6.30
10 lines	2.50	4.00	5.50	7.00

FOR SALE steam locomotive 18x24 10 wheel type, standard gauge, air brake, electric headlight, good boiler, weight engine and tender 50 tons. Suitable for switching, refinery or other industrial uses. Price $3,000. J. R. Edmonds, 168 N. Vancouver, Phone 8024, Tulsa, Okla.

FOR SALE—Natural gas condenser (Killinghurst type) 1,000,000 feet capacity, with 4,000-gallon steel tank. Address Wm. C. Zimmer, care Helm Hotel, Bowling Green, Ky.

FOR SALE—150 feet of 70-pound 15½-inch; 1,000 feet 40-pound 10-inch; 2,700 feet 8¼-inch 32-pound 8-thread and 3,400 feet of new 24-pound 6¼1-inch 10-thread J. & L. Woodlawn. Special casing; 100,000 feet of 2-inch line; 20,000 feet of 2-inch tubing and rods; also excellent powers, engines, tanks and other equipment. J. F. Arnold Co., Decatur, Ind.

FOR SALE—No. 4 Williams pipe threading machine, in first class condition; size 1½-inch to 8-inch; $8,000, f.o.b. Houston, Texas. Texas Supply Co., Box 1777, Houston, Texas.

Watch This Space From Time to Time for Real Bargains
PLAIN END PIPE
FOR GAS LINES

We have available for immediate shipment. 80,000 feet 4-inch; 30,000 feet 5½-inch; 30,000 feet 6-inch; and 25,000 feet 6½-inch Odee plain end pipe, first class material, thoroughly reconditioned, with plain ends ready for welding in the field. This material is furnished in double joints, which will enable you to cut your installation cost in half. The price of the pipe will likewise cut your cost about in half.

JOS. GREENSPON'S SONS
IRON & STEEL CO.
Department O St. Louis, Mo.

BESSEMER Gas Engines, 15- to 165-h.p., other makes 300-h.p. Oil and gas and steam engines, compressors, generators, complete gasoline plants. R. W. Russell, St. Marys, W. Va.

FOR SALE—25 h.p. type Y oil engine, equipped with Weber Clutch, $450 f.o.b. cars. Will purchase 60 to 100 h.p. oil engine; state price and condition. Oklahoma High Line Construction Co., 508 Mayo Bldg., Tulsa, Okla.

FOR SALE—EQUIPMENT

FOR SALE—550 feet 8¼-inch 24-pound, and 900 feet 6¼-inch 13-pound casing. Quality and price right. Emily Schick, Vinland, Kans.

FOR SALE

Eleven De Laval Steam Driven Oil Separators—Type 601

These machines are in first class condition and have copper lined bowls and copper Tinware.

This is a real Bargain

Communicate with

Purchasing Agent

H. F. WILCOX OIL & GAS CO.

Wilcox Building Phone 8231

Tulsa, Okla.

FROM NOW ON, When I want to do business with the real men of the petroleum industry, I'm going to put my advertisement right here in this Classified Wants Section.

FOR SALE—We are wrecking a lease at Augusta, Kans. Casing of all sizes from 5⅞-inch to 15½-inch and about 10 miles of 2-inch line pipe and 1 mile of 4-inch line. Steam engines, gas engines, 15 electric motors and all sizes of tanks. All other equipment necessary for running a producing lease. All this material in first class condition. If interested call or write, El Dorado Iron & Supply Co., El Dorado, Kans.

FOR TRADE—EQUIPMENT

FILLING STATION equipment to trade for drilling machine of 1,000 to 2,000-foot capacity. Box 519, Amarillo, Texas.

LEASES—PRODUCTION

NORTH TEXAS

Shallow field leases, including offsets, at low prices. Offsets to producing leases in Archer County have sold as high as $900 cash per acre. Chance for excellent profits. Write for maps and prices. P. R. MacIntosh, 215 Neil P. Anderson Bldg., Fort Worth, Tex.

POTTAWATOMIE and Seminole County acreage. B. H. Rowlett and Company, Tecumseh, Okla.

LEASES—PRODUCTION

3,000 ACRES lease in Kentucky, including three commercial gas wells and complete drilling outfit. Will sell part of these leases or preferably have someone develop leases on a percentage basis. New oil well near. No stock promotion will be considered. Anyone interested on a sound business basis, write to W. S. Haldeman, Monmouth, Ill.

FOR SALE

A 15-acre producing lease at High Island, Texas. One well came in at 250 bbls., now producing about 10 bbls. Grade "A" Coastal; depth 149 feet.

Equipment consists of two derricks, one gasoline rotary rig, completed; 1½ miles pipe line to loading rack; three pumping engines, casing and tubing; 8,000 bbls. of new Parkersburg steel storage tanks; 1,300 bbls. of crude in tanks goes with lease. Price on application.

CARTER AUTOMOBILE CO.
2322 P. O. St. Phone 1240
Galveston, Texas

OIL AND GAS propositions, shallow drilling, new section in Pennsylvania. Box A-480, The Oil and Gas Journal, Tulsa, Okla.

FOR SALE—Oil leases and royalties. New developing field. Five wells going down. Kingfisher and Logan Counties. H. M. Godfrey, Crescent, Okla.

PRODUCTION—Large or small; drilling acreage, leases, royalties. Make specialty of fee acreage. Large acquaintance in Wichita, Clay, Baylor, Archer, and Wilbarger Counties. Stehlik & Baber, Kemp Hotel, Box 467, Wichita Falls, Texas.

SOUTHEAST New Mexico is having real boom; many new wells starting; big opportunities for investors; write for leases prices and map. Orcutt-Harris & Co., Colcord Bldg., Oklahoma City, Okla.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps, address W. P. Harley, Bowling Green, Ky.

J. F. MARION COMPANY
Magnolia Building
Dallas, Texas
Buys and Sells
Texas and Oklahoma
Producing Royalties
"Ask Us First"

ONLY TRACT Not Leased, near Jim Hogg County, Texas, gusher; 9,400 acres in fee; all good pasture, citrus fruit and agricultural land; fenced; ranch improvements; good water 60 to 100 feet; proven oil and gas on three sides. Price $10 per acre. Smith & Smith, San Antonio, Texas.

JUST THINK. $2.80 will pay for sending a four-line advertisement all around the world four times. A four-line Classified Advertisement usually consists of 24 words and you know a great deal can be told in a few words. Mail your advertisement to the Classified Section now so that you will get in next Thursday's issue.

10,000 ACRES free leases, famous Scuna Valley Basin, Mississippi, for core drilled well. $20,000 required guarantee drilling; best geology. W. C. Brooks, Memphis, Tenn.

S. E. NEW MEXICO

FOR SALE—Protection acreage on Manning Dome offsetting holdings of Arkansas Fuel Oil Co. and the Ohio Oil Co. Guaranteed to be on structure. Price $3 to $5 per acre. W. H. McCullough, Roswell, N. M.

LEASES—PRODUCTION

LOOK—Royalty offset to drilling in real oil country (near Powell). Frank Poorman, 3215½ Ross Ave., Dallas, Tex.

OIL AND GAS LEASES
On Marathon Fold

20,000 acres, new 20-year, 88 Form lease; Pecos County; 10 cents rental.

18,000 acres, University permits, dated October 1, 1924, joining University permits of Sun Oil Co. and Gulf Production Co. Transcontinental now drilling and three more well to start. Price reasonable.

20,000 acres 10-year leases, Crockett County; large and small blocks.

5,000 acres 10-year lease; close to drilling wells; Reagan County.

3,200 acres University permits, Reagan County; close to Big Lake Oil Co. and Texon Oil & Land Co. producing wells. Want drilling contract.

3,000 acres 10-year lease, Upton County; near drilling well and joining leading company holdings. Prices and maps on request.

C. W. WEBSTER
1001-1003 W. T. Waggoner Bldg.
Fort Worth, Texas

FOR PANHANDLE oil leases and drilling contracts write Dr. W. R. German, Canadian, Tex.

THE RESULT producing benefits of THE OIL AND GAS JOURNAL Classified Wants Section is helping the men of the industry to get the maximum good out of their equipment.

Good machinery, equipment, etc., is being kept in operation by reason of alert men buying and selling through the Classified Wants Section.

These men know that it is economically sound for a concern to sell good equipment which it cannot use. Therefore, thrifty executives use the Classified Wants Section as an economizing move that is helpful to the entire industry.

Read the advertisements in the Classified Wants Section every week. It will help you.

WESTERN KANSAS—Will trade acreage for use of casing and for trucks. 6-inch Ideal irons, tools, tanks and other equipment, also for acreage favorably situated near other drilling wells. Our wells on structure which will stand exacting check. Contract depth on all five wells 3,500 feet. Box A-490, The Oil and Gas Journal, Tulsa, Okla.

IF YOU ARE interested in Colorado land southwest of Colorado Springs and northwest Pueblo, write L. E. Ehrenfeld, Hillside, Ariz.

80 OR 120 ACRES of patented land for sale, in Section 5, Township 15, Range 27. Just north of Illinois Producers Field, in Eddy County, all oil and mineral rights go with it. Price, $12.50 per acre; perfect title. Wire or write J. F. Rogers, Box 582, Roswell, New Mexico.

OIL LEASES—Close in, Reagan County Field, 5 to 5,000 acres; drilling contracts. See us first. First State Bank Building, Big Lage, Texas. Standard Development Co., Big Lake, Texas.

FOR SALE—Oil leases near Bushfield well in Wilcox sand, Buffalo, Kansas; 320 acres at $20 per acre; 80 acres at $30 per acre; 200 acres at $20 per acre, and 120 acres at $20 per acre. Bideau & Tye, Chanute, Kans.

LIVE OAK and McMullen Counties, South Texas; recognized by the leading oil men and geologists as the next big oil field of Texas. Commercial leases; large and small tracts, 10 acres up. On structure; wells drilling on all sides. Practically all the big companies in this field. Prices low. Titles guaranteed. Buy now. Gulf Leasing Co., 525 Brady Building, San Antonio, Texas.

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

MAIL your advertisement now. It will be published next week. Cash with order.

LEASES—PRODUCTION

GUADALUPE COUNTY LEASES

$3.00 AN ACRE

Lease between Seguin and Cibilo River in Guadalupe County, Texas, where dozen of the largest companies in the United States hold leases, and where several tests are soon to be drilled can be had today for $3 an acre. Get particulars.

We also have leases along Marathon Fold and Balcones Fault from 10 cents an acre up. Here are a few of them:

Reagan County	$3.50 an acre
Pecos County	1.00 an acre
Medina County	.50 an acre
Crane County	1.00 an acre
Upton County	1.00 an acre
Gillespie County	.10 an acre

30 other counties.

Free map of Texas showing the Marathon Fold and Balcones Fault is given with each inquiry. Write today for our latest list of bargain leases in Texas and free map. No obligation.

GULF REALTY COMPANY
202 Bedell Bldg., San Antonio, Texas

BUSINESS OPPORTUNITIES

Can get up 25,000 to 50,000 acres of promising oil and gas leases in three of Kentucky's coming oil producing counties—10-year leases, 10-cent rentatl—at a cost of 40 cents per acre. For full particulars address, Keene Lutes, Danville, Ky.

I OUGHT to be able to sell equipment through this section. It must bring good results, because it is filled with Classified Advertisements every week. Guess I'll try it.

POSITION WANTED

PETROLEUM ENGINEER—Have designed, built and operated 50 gasoline recovery plants; experienced in pipe line and general construction work; was petroleum engineer and drilling superintendent for large California company running five strings of rotary tools. Have thorough knowledge of California drilling, production and gasoline practice. Want position anywhere along above lines, anywhere, and will welcome foreign service. Box A-491, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED—Treater with 15 years' experience on lub oils, pressure distillates and light oils. Address Treater, The Oil and Gas Journal, Tulsa, Okla.

THE SMALL SUM that it costs to insert an advertisement in the Classified Section of The Oil and Gas Journal enables you to place your desires in the minds of men who are always interested in a good proposition.

LIGHT OIL MAN—Refinery man with 10 years' experience, from loading rack to general superintendent, wants good connection. Practical man. Address Box A-400, The Oil and Gas Journal, Tulsa, Okla.

M. C. B. & A. R. A. accountant, thoroughly familiar with all phases of car repairs and operation of tank line. Write Louisiana Steel Car Co., 864, New Orleans, La.

HELP WANTED

WANTED—"Live wire" Mid-Continent representative. Prefer engineer or salesman now covering the territory who can handle our attractive proposition with present line. Address Box A-401, The Oil and Gas Journal, Tulsa, Okla.

HELP WANTED

EXECUTIVES, ENGINEERS, now earning $3,000-$25,000 will find our individual, confidential service a dignified and effective medium to make desired connections. Personally conducted by Mr. Jacob Penn, the eminent employment authority, known to leading business men throughout America. Not employment agency. Jacob Penn, Inc., 305 Broadway, New York City, N. Y.

LARGE and well known manufacturer of gas and oil engines desires services of high class salesman. Preferable one having large acquaintance in the Mid-Continent and other oil fields, and fully familiar with power requirements for beam well, band wheel power, general pumping and gas compressor service. Applicants should give complete information as to previous experience, age, salary expected, etc. Box 800, The Oil and Gas Journal, Tulsa, Okla.

WANTED

WANTED—To get in touch with a good leaser in each oil producing State in the Union. Write C. L. W., 969-B Union Trust Bldg., Pittsburgh, Pa.

WANTED—Drilling blocks on approved geology; Oklahoma and Kansas preferred. Box A-482, The Oil and Gas Journal, Tulsa, Okla.

IN READING The Oil and Gas Journal you will be taking the best means possible to keep yourself acquainted with the progressive developments and changes that are continually going on within the industry.

WANTED by old established concern, an issue of stock to sell. Companies incorporated and financed. Address, "Issue," Room 414, 63 Park Row, New York, N. Y.

WANTED—Information regarding zinc, lead, antimony, bauxite, gold and silver deposits in Oklahoma and Texas. Box A-463, The Oil and Gas Journal, Tulsa, Okla.

WANTED small natural gas plant, or might consider piping wells to market. Box A-461, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Blocks or offset acreage on structure. Must stand close investigation and will deal only with principals. Submit maps and all data. Box A-460, The Oil and Gas Journal, Tulsa, Okla.

WANTED—Producing royalties. Oklahoma and Kansas. Give full details. P. O. Box 502, Independence, Kans.

TANK TABLES

GUARANTEED TANK TABLES

Tracings, $2.50 to $5, according to size of tank. White cloth prints, 75c to $1.25 each. Blue prints, 25c to 75c each. Send strapping report and instructions to H. F. Heydrick, 208 South Twelfth St., Muskogee, Okla.

WRITE your advertisement, mail it to The Oil and Gas Journal, and it will be placed in the hands of thousands of producers and refiners in all parts of the world. It doesn't cost much.

BUSINESS OPPORTUNITY

Form your own company or incorporate with others, and colonize rich, low-priced agricultural land in

MEXICO

Investment safe; profit attractive; large capital not necessary. I make the building of a community a success by handling intelligently Agricultural Surveys, Soil Surveys, Production Surveys, Marketing Surveys; Purchasing, Financing and Colonizing Methods; Community Planning and Development Work. Industrial Engineer, Box 1064, El Paso, Texas.

BUSINESS OPPORTUNITY

FOR TRADE

Good Oklahoma farm, half mile from production to trade for standard string of tools and casing for 3,500-foot test. Address Box D. D., The Oil and Gas Journal, Tulsa, Okla.

UNUSUAL OPPORTUNITY to acquire interest in manufacturing Patented Bolted Steel Tanks. Demonstrated practical and salable. Box A-451, The Oil and Gas Journal, Tulsa, Okla.

MY SPECIAL Star 30 drilling machine, calf wheel attachments; located in Osage County, with capable men for drilling; would consider interest in lease, also carry my part of operating expenses; cordage and tools; good condition; give location of your lease with proposition and references. Box A-470, The Oil and Gas Journal, Tulsa, Okla.

WHITE SPACE at the top and bottom of an advertisement makes it conspicuous. Ask for it in your next advertisement. Figure the cost at regular rates per line.

CORE DRILL your structure with diamond drills and reduce the hazard of wildcatting. Let us help your geologist correlate structure before you put cable tools at work. The cost is relatively small and the possible saving enormous. On well located tracts we will accept acreage in lieu of profits. Drilling Corporation of America, George H. St. Clair, General Manager, 205 Cosden Bldg., Tulsa, Okla. Phone 3-9031.

CONTRACTORS

C. B. CASENBURG
General Contractor
El Dorado, Kans. Shidler, Okla.
Oil field construction work of all kinds.
Rig Building
Gas Engine Setting
Installation of Powers
All Work Guaranteed
Estimates Cheerfully Given
Write Us

LETTERHEADS—PRINTING

SAY IT WITH PRINTING, Basic Bond Letterheads $3.50, envelops $2.50. Get our quantity prices. Creative advertising Department. Safety Printing Co., Box 276, Rock Island, Ill.

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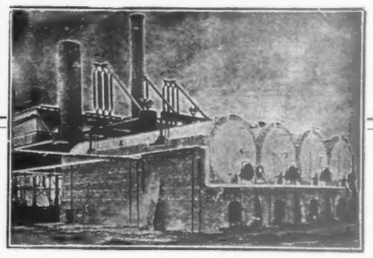

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N. LOUISIANA-ARKANSAS

(Continued from Page 42)

& Murphy retain their Coyle lease in Section 28 and are drilling in lime at 1,685 feet.

The Humble Oil & Refining Co. is arranging to pump Bodcau B-2 in Section 24-21-10, drilling at 940 feet in B-4, Section 24-21-10 and at 120 feet in B-5, Section 13-21-10; the Ohio Oil Co. set 6-inch casing at 2,490 feet in No. 8 Bodcau and rigging up to drill No. 9 and No. 10 in Section 15-21-10.

In the Springhill district, in the north end of Webster Parish, Belchic & Laskey set 6-inch casing at 2,590 feet in No. 5 Pine Woods Lumber Co., Section 33-23-11, and The Texas Co. has derrick up for No. 1 F. M. Tinsley, Section 35-23-11. W. L. Haenlen, trustee, set 10-inch at 508 feet in No. 1 Roberts, Section 9-23-10.

Between the Springhill district and the Cotton Valley Pool, the Bethany Oil & Gas Co. set 6-inch casing at 2,565 feet in No. 1 T. R. Wiley, Section 1-22-10.

Six miles south of the Cotton Valley district, McDowell and others are drilling in chalk rock at 2,010 feet in No. 1 Hortman, Section 15-20-10.

Bossier Parish

In the northern extension of the Elm Grove district, the Arkansas Natural Gas Co. is drilling at 1,050 feet in Van Hoose A-3, Davis & Hanby are drilling at 750 feet in No. 1 D. J. McAnn, the Standard Oil Co. is drilling in chalk rock at 1,015 feet in No. 4 J. T. McDade and Palmer & Hanby have derrick up for No. 4 McAnn, in Section 36-16-11.

Ten miles east and a little north of Shreveport, the Standard Drilling Syndicate is rigging up to drill deeper in No. 1 Johnson, Section 18-16-11, abandoned June 25 at 1,080 feet as a dry hole.

In the Elm Grove district, the Palmer Corp. set 6-inch casing at 1,898 feet in Hodges B-5, Section 25-16-12.

In the Springhill district, in the north end of the parish, G. W. Weatherbee set 6-inch casing at 2,625 feet in No. 1 Bollinger, Section 32-23-11.

Caddo Parish

In the Pine Island district, the Dixie Oil Co. set 10-inch at 125 feet in No. 3 Louisiana State, Section 13-21-15; Fortuna Oil Co. is down 1,350 feet in No. 13 Doan Thigpen, Section 3-20-15; The Texas Co. is drilling at 1,820 feet in Hobbs S-6, Section 28-21-15, and the Tholl Oil Co. set 6-inch casing at 1,375 feet in No. 12 Crye, Section 22-21-5.

In the Caddo Lake district, William Gross and others have derrick up for No. 1 H. Reeves and others in Section 5-20-16, and The Texas Co. is drilling at 2,525 feet in No. 1 Federal Jeems Bayou, Section 15-20-16.

In the Rodessa district, the Lewis Oil Corp. is down 100 feet in a test on the Caddo Mineral Land Co. lease in Section 24-23-15, and R. B. Smith, trustee, is rigging up to drill No. 1 Pitts in Section 11-23-16.

The Richardson Oil Co. is drilling at 1,810 feet in No. 1 Bickham, Section 15-18-15, north of Cross Lake and 7 miles northwest of Shreveport.

In the Waskom district, Glassell & Myers are rigging up to drill No. 1 Florsheim in Section 9-17-16 ,and the Waterman Drilling & Development Co. tested salt water at 995 feet in No. 2 Waterman Section 18-17-16, and will drill deeper.

Claiborne Parish

The Gulf Refining Corp. is drilling at 3,280 feet in No. 1 Farmer, Section 35-23-6, 10 miles northeast of Homer.

Woodley & Collins are drilling at 1,265 feet in No. 1 Fortson, Section 28-21-5, 8 miles east of Homer.

Lincoln Parish

Buckner and others are drilling at 1,225 feet in No. 1 Barrett, Section 13-20-3w, about half way between the Monroe gas field and the Homer oil field.

Ouachita Parish

The Consumers Gas Co. set 8-inch casing at 995 feet in No. 1 Collins, Section 10-19-5; Dickson & Frue set 8-inch casing at 2,075 feet in No. 1 Goodwin, Section 24-18-2e; Ladel and others set 6-inch in No. 30 Fee, Section 10-10-5, and drilling at 1,980 feet in No. 31 Fee, Section 20-19-5, and the Ouachita Natural Gas Co. set 8-inch casing at 950 feet in No. 3 Trezevant, Section 40-20-4.

Montgomery and others are drilling at 1,100 feet in No. 1 Carter, Section 12-19-4; Southern Carbon Co. set 6-inch at 2,185 feet in No. 39 Fee, Section 29-19-5, and at 2,145 feet in No. 41 Fee, Section 7-19-5, and rigging up to drill No. 42 Fee, Section 7-19-5; The Texas Co. is drilling at 2,130 feet in No. 3 Ladel, Section 11-19-4; Union Gas & Producing Co. set 12½-inch casing at 210 feet in No. 4 Daughtie, Section 28-19-5, and United Oil & Gas Co. is drilling at 700 feet in No. 2 Cole, Section 36-20-4.

Morehouse Parish

Ladel and others are drilling at 1,830 feet in No. 3 White, Section 33-20-5, and the Stovall Drilling Co. at 1,775 feet in No. 1 Fee, Section 27-21-4.

Union Parish

Jones & Walker are drilling at 1,575 feet in No. 1 Feazel, Section 6-19-2e, between Monroe & Farmerville, and the Natural Gas Producing Co. set 6-inch at 2,085 feet in No. 2 Grayling, Section 8-21-4.

Columbia County, Arkansas

The Magnolia Petroleum Co. set 10-inch casing at 120 feet in No. 2 Watson, Section 36-15-20, in the Stephens district

Moore and others are rigging up to drill No. 1 Fullenweider in Section 12-17-22, and Russell & Kent drilling at 2,115 feet in No. 1 Davis, Section 25-12-21.

Hempstead County

The Fullilove Drilling Co. is drilling at 2,330 feet in No. 1 Ford, Section 31-14-23.

Nevada Parish

Ames and others set 6-inch casing at 1,120 feet in No. 1 E. E. Womack, Section 10-14-21, and Smitherman & McDonald set 10-inch at 42 feet in No. 4 Womack, same section.

Zing and others are drilling at 750 feet in No. 1 Graves, Section 22-10-23.

EASTERN PIPE LINE REPORT FOR OCTOBER

Receipts of crude petroleum from the wells by the pipe lines of the Eastern division during the month of October amounted to 2,014,259 bbls., which is a daily average of 64,976 bbls. This represents an increase of 126,360 bbls. in the aggregate and 2,046 bbls. in the daily average when the figures are compared with those for the previous month, September. The daily average is 11,280 bbls. less than the daily average receipts for the month of October, 1923.

The deliveries of crude petroleum during the month of October by the pipe lines of the Eastern division aggregated 3,818,264 bbls., which represents a daily average for the month of 123,170 bbls. This is a decrease of 1,487 bbls. in the aggregate and a loss of 4,155 bbls. in the daily average, there being one more day in October than September. The daily average shipments were 11,427 bbls. less than the figures for October, 1923.

During October the runs of oil from the Illinois Field by the Tide Water Pipe Co. and the Illinois Pipe Line Co. amounted to 741,767 bbls., the daily average being 23,928 bbls. This is an increase of 26,892 bbls. in the total and a gain of 99 bbls. in the daily average. Deliveries of oil during October by these two lines amounted to 543,864 bbls., the daily average being 17,544 bbls. This is an increase of 8,101 bbls. in the total and a loss of 315 bbls. in the daily average, when the figures are compared with those for September.

During the month of October there was an increase of 457,225 bbls. in the amount of crude oil held in storage by the pipe lines east of the Mississippi River. The total amount held by these lines at the close of October was 12,664,061 bbls. The amount of Pennsylvania oil increased 223,467 bbls. Lima increased 8,833 bbls., Kentucky decreased 40,258 bbls., Mid-Continent increased 215,999 bbls., and Illinois increased 49,185 bbls.

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Oil Securities Reach New High Marks

Some Attain New Records for the Year. Advance in Vacuum Feature of the List. New Financing Expected to Handle Storage

By N. O. Fanning
Room 543, No. 30 Church St., New York

NEW YORK, Nov. 15.—Carried along by the wave of buying which swept the stock markets after election, oil securities made new high during the past week on the present movement. Some oil stocks made new high marks for the year.

Featured in the advance of oil stocks listed on the New York Stock Exchange were Independent Oil & Gas, which rose to a new high at 11¾, Marland Oil, which crossed 40 for the second time this year, Standard of New Jersey at 38¾, Simms Petroleum at 19 and General Asphalt common at 49.

Among the Standard Oil group traded in on the New York Curb market Vacuum Oil was easily the feature, advancing to 81⅜. Anglo-American Oil and International Petroleum were also strong.

Vacuum Oil

The advance in the price of Vacuum Oil shares to 81⅜ was the result of the declaration by that company of an extra dividend of $1 per share in addition to the regular quarterly dividend of 50 cents, making disbursements so far this year of $3.75. Extra dividends amounting to $2.25 have been paid. Last year a total of $2.50 per share was paid, including extras.

At $81 per share, Vacuum Oil is selling on the basis of $972 for the old stock before the payment of a 300 per cent stock dividend and reduction in par value from $100 to $25. The highest figure at which the old stock ever sold was $708, so that the current price represents a high for all time.

Being one of the most conservative of the Standard Oil group, declaration of extra dividends amounting to $2.25 per share so far this year is looked upon as an indication of record earnings. The favorable position of the company has previously been outlined in these columns.

Union Oil Listed

Union Oil Co. of California $25 par value stock was listed on the New York Stock Exchange, the first transaction being reported Thursday, November 13. The stock sold around $36 per share. Dividends at the rate of 7.2 per cent are being paid on the stock.

Sinclair Earnings Improve

Securities of Sinclair Consolidated Oil Corp. have shared in the recent advance, the common reaching almost to 19 and the preferred selling above 81, against a recent low of 76.

With better prices prevailing for gasoline and miscellaneous products, particularly fuel oil and lubricating oil, earnings of Sinclair Consolidated Oil Corp. are improving. The position of Sinclair is steadily being strengthened, and the earning power of the company is definitely on the upgrade, according to officials. Most of the expansion and development work Sinclair has had under way for several years has been completed, and the budget for next year calls for only nominal outlay, estimated at $3,000,000.

Sinclair earned more than $9,000,000 net after expenses and ordinary taxes and interest, but before Federal taxes and reserves in the first six months of this year, against $7,200,000 in the same period of 1923. Low prices for gasoline during the summer reduced this earning rate somewhat, but recent improvement is bringing earnings back again.

Skelly Oil Co. has sold to bankers an issue of $6,850,000 6½ per cent three-year convertible notes, dated October 1, 1924, and maturing October 1, 1927. They are being offered publicly by Hayden, Stone & Co. and Luke, Banks & Weeks at 101½ and accrued interest.

The notes will be convertible up to and including October 1, 1926, (or up to redemption date if sooner called) into shares of the capital stock of the company at the rate of one share of the par value of $25 for each $25 principal amount of each entire note so converted, accrued interest and dividends on such conversion to be adjusted in cash. A sinking fund of $75,000 per month, starting immediately, is provided to purchase notes at not over par.

New Financing Expected

It is believed the improved sentiment with regard to oil securities will be seized as an opportunity for new financing by oil companies during the next few months. Although the outlook for the oil industry is decidedly cheerful, stocks of oil on hand are considered so large as to require considerable financing. Whether the larger concerns will believe it advisable to go to the public or to draw upon their own resources is the question.

California Petroleum

California Petroleum Co. for quarter ended September 30, 1924, reports net income of $712,793 after interest, depletion, depreciation, Federal taxes, etc., equivalent to 2.37 per cent earned on $29,966,931 combined preferred and common stocks. This compares with $1,949,091, or 6.50 per cent in third quarter of 1923.

Net income for first nine months of 1924 totaled $2,471,727 equal to 8.24 per cent on the stocks comparing with $5,861,408, or 19.55 per cent in same period of 1923.

Consolidated income account for nine months compares as follows:

	1924	1923	1922
Gross earnings	$13,285,586	$15,363,557	$6,943,537
Operating expenses	5,508,680	6,614,911	3,092,476
Net earnings	$ 7,776,906	$ 8,748,646	$3,851,061
Depreciation, depletion, etc.	4,565,411	2,151,639	1,439,532
Bond interest	447,423	35,599	37,537
Federal taxes	293,345	700,000	295,200
Net income	$ 2,471,727	$ 5,861,408	$2,079,489
Preferred dividends	628,973	649,675	629,975
Common dividends	415,398	912,293	.....
*Special provision	912,292	453,619	182,833
Surplus	$ 515,064	$ 3,845,821	$1,366,681

*Provision for redemption of preferred stock and bonds of subsidiary companies.

Tide Water Oil

Report of Tide Water Oil Co. for nine months ended September 30, 1924, shows net income of $3,848,023 after expenses, depreciation, depletion, etc., equivalent to $7.69 a share earned on $50,004,300 capital stock. This compares with $3,454,748 before Federal taxes or $6.95 a share on $49,678,400 stock in corresponding period of 1923.

Net income for third quarter this year was $524,906 after charges and taxes, equivalent to $1.04 a share comparing with $418,313 before taxes or 84 cents a share in same period of 1923.

Consolidated income account for nine months ended September 30, 1924, compares as follows:

	1924	1923
Gross	$49,541,279	$45,098,020
Expenses	41,701,545	39,384,585
Operating income	$7,839,734	$5,713,443
Other income	535,134	756,328
Total income	$8,374,868	$6,469,771
Depreciation and depletion	4,030,497	3,079,710
Net income	$4,344,371	$3,390,061
Outside stockholders prop.	46,698	64,687
T. W. O. prop. net income	$4,391,069	$3,454,748
Estimated Federal tax	543,047	.....
Balance	$3,848,022	$3,454,748
Dividends	1,500,100	.....
Surplus	$2,347,922	$3,454,748
Surplus January 1	19,172,142	17,326,881
Adjustments	*118,449	*71,414
Profit and loss surplus	$21,401,615	$20,704,315

*Debit.

Consolidated general balance sheet of Tide Water Oil Co. and subsidiaries, as of September 30, 1924, compares as follows:

Assets	1924	1923
*Prop. and equity	$61,098,782	$58,365,940
Other investments	7,825,959	7,803,433
Government securities	.....	1,500,078
Fire reserve fund	234,650	.....
Cash	2,665,667	2,200,292
Notes and accounts receivable	4,469,096	5,268,261
Crude oils, etc.	15,464,746	12,351,255
Due from affiliated companies	753,520	1,355,485
Material and supplies	1,752,169	1,562,066
Deferred items	1,486,752	1,800,281
Total	$95,750,341	$92,227,176
Liabilities		
Capital Stock	$50,004,300	$49,688,400
Subsidiary stock	706,600	729,900
Accounts and notes payable, etc.	3,892,817	3,388,721
Gold bonds	12,000,000	12,000,000
Purchase money	1,119,446	.....
Capital stock sub.	404,237	636,696
Accrued taxes	173,107	86,634
Due affiliated companies	452,285	.....
Reserves	4,735,717	3,889,576
Deferred liabilities	987,243	1,227,172
Deficit of subsidiaries	127,027	84,338
Surplus	21,401,616	20,704,315
Total	$95,750,341	$92,227,176

*After depreciation and depletion.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stock—	Par	§Dividend Rate	Clos. Quotations Nov. 17	Nov. 10	1924 High	1924 Low	1923 High	1923 Low
1.	American Republics	..	..	40	*38	43	25	..	..
2.	Associated Oil	25	6	31⅞	32⅜	34⅝	27⅝	29¼	29½
3.	Atlantic Ref. com.	100	..	92½	91½	140½	78½	160	98¾
4.	Barnsdall "A"	25	..	19	18½	21⅝	14	35	9⅞
5.	California Pet. com.	25	7	23½	24½	29	19⅞	28½	17½
6.	Cosden & Co. com.	..	..	28½	28⅞	40¼	22⅝	62¼	23¾
7.	General Am. Tank.	..	†3	*45	46¼	49¼	35½	71⅞	40
8.	General Asphalt	100	..	51	46	52	31⅜	64	23
9.	General Petroleum	25	8	43	44½	46	38⅝	..	..
10.	Houston Oil	100	..	72	72⅜	82½	61	78	40⅜
11.	Independent Oil & Gas	10	..	11⅝	10¼	12⅞	5⅝	11¼	3⅝
12.	Indian Refining	10	..	*5	5⅝	7	3⅜	8½	4
13.	Invincible Oil	50	..	15	16½	16⅞	11⅜	19¼	7½
14.	Maracaibo	..	..	28	28¼	37⅛	25⅝	28½	16
15.	Marland	..	..	38½	38⅜	42	29	59⅝	18½
16.	Mexican Seaboard	..	..	19⅝	20	25¾	14⅛	19¾	5¾
17.	National Supply	50	6	60	58	72½	54	68	54
18.	Pacific Oil	50	†2	54¼	55½	58¼	45	52⅛	31½
19.	Pan American com	20	16	55⅝	55½	61¼	44¼	93½	53
20.	Phillips Petroleum	..	†2	36½	37¼	42¼	28½	69⅝	19¾
21.	Producers & Refiners	50	..	28	29½	43½	22¾	58¼	17½
22.	Pure Oil com.	25	6	26	27	27	20	32	16¼
23.	Royal Dutch, N. Y. sh.	13.40	2.62	44⅞	46	59¼	40⅜	55½	40½
24.	Shell Transport	10	x92½	37⅝	39½	41½	33	41¼	29½
25.	Shell Union com.	..	†1	19⅞	20½	20⅝	15⅜	19¼	12⅝
26.	Simms Petroleum	10	..	17⅜	18½	18⅞	10⅜	16⅜	6½
27.	Sinclair Cons. com.	..	..	17½	18½	27½	15	39⅜	16
28.	Skelly Oil	25	..	21⅝	22⅞	29	17¼	35	12½
29.	Standard of California	25	8	60⅛	62½	68½	55½	64½	47½
30.	Standard of N. J. com.	25	4	37	38½	42½	33	44¼	30⅝
31.	Standard of N. J. pfd.	100	7	118	118	118⅝	115⅝	118¼	114¾
32.	Superior Oil	..	..	4⅝	5	8⅛	2⅝	6⅜	2
33.	The Texas Co.	25	12	42¼	43	45⅝	37⅜	52⅞	34⅝
34.	Texas Pac. Coal & Oil.	10	..	10⅝	10½	15¼	8¼	24⅜	5½
35.	Tide Water Oil	100	4	129	130	151	116¼	144	94
36.	Transcontinental	..	..	4⅝	4⅛	6¼	3⅜	14½	1¼
37.	Union Oil of Cal.	25	7.2	35¼	..	36⅛	35½	..	..
38.	Union Tank. com.	100	5	121	*127	132⅞	94	114	106
39.	White Eagle Oil & Ref.	..	2¼	26⅜	26⅜	29⅝	23½	30⅜	20⅛
	Standard Oil Stocks								
40.	Anglo-American Oil	£1	25	17⅝	17⅝	18	14⅜	19¾	13½
41.	Borne Scrymser	100	12	*219	214	264	150	153	110
42.	Buckeye Pipe Line	50	14	64	64½	85½	51	94	57½
43.	Chesebrough Mfg. Co.	25	14	*48	*48	43⅝	29¼	340	205
44.	Crescent Pipe Line	25	..	13½	*14¼	20	11¼	25	15
45.	Cumberland P. L.	100	10	138	135	148	109	117	80
46.	Eureka Pipe Line	100	8	*91	*83	105	74	117¼	87
47.	Galena Signal com.	100	4	*58	56	69¾	55¼	78	55
48.	Humble Oil & Ref.	25	4.8	38	39	43¾	36	41	28¼
49.	Illinois Pipe Line	100	12	133	133	161	123	171	115
50.	Imperial Oil, Ltd.	25	12	108½	111½	119	99	123	92
51.	Indiana Pipe Line	50	8	76	76½	100	66	103	81
52.	International Pet. Co.	100	x50	20⅝	21	22¼	16⅞	24⅜	13¼
53.	Magnolia Pet. Co.	100	4.5	135½	140	160	124	166	123
54.	National Transit	12.50	16	*23	23	25⅞	21¼	29	19½
55.	New York Transit	100	10	68	72	97	54½	138	70
56.	Northern Pipe Line	100	6	79	80	107½	73	111	96
57.	Ohio Oil Co.	25	8	62	68½	79½	58	85⅝	48¾
58.	Penn-Mex. Fuel	25	..	34	*33	45⅝	32½	45	10½
59.	Prairie Oil & Gas	100	8	208½	215½	269	194½	272	152
60.	Prairie Pipe Line	100	8	105	106¼	111	100	117	93
61.	Solar Refining Co.	100	15	198	190	225	170	212	161
62.	South Penn Oil	100	..	140	135½	176	117	196	100
63.	South West Pa. Line	100	8	*80	*77	89	76½	89	66
64.	Southern Pipe Line	100	16	94	94	100	86	116	87
65.	Standard of Indiana	25	10	59⅜	61⅜	68⅜	54¼	69⅞	48⅛
66.	Standard of Kansas	25	..	38⅛	38⅛	50⅛	32½	56⅛	36½
67.	Standard of Kentucky	25	16	119¼	120⅝	121⅛	101	109⅛	76
68.	Standard of Nebraska	100	20	238	245	256½	198	280	186
69.	Standard of New York	25	5.6	44	44⅜	48	37⅜	49⅜	35½
70.	Standard of Ohio com.	100	10	318	316	336	277	320	270
71.	Swan & Finch com.	25	..	*23	..	28	20	..	..
72.	Vacuum Oil	25	†3.75	80	78	78	56½	55½	40
73.	Washington Oil	10	..	*30	*29½	29	25	28	20¼
	Miscellaneous Stocks								
74.	Cities Service, bks. sh.	..	†21	16⅞	17⅜	19	13¼	18½	12¾
75.	Gulf Oil Corp. of Pa.	25	6	65½	66¼	67	56	68¼	45¾
76.	Mutual Oil	5	10	11⅜	12	14	9¾	..	..

*Bid, no sales. †In dollars. §The figures in this column are kept up to date as far as possible, but are not guaranteed. xCents per share.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

Nov. 17	50.07	Oct. 11	45.24	Sept. 8	47.89
Nov. 10	51.86	Oct. 6	46.20	Aug. 30	47.59
Nov. 3	48.16	Sept. 27	46.70	Aug. 25	47.01
Oct. 27	47.58	Sept. 22	47.02	Aug. 18	47.85
Oct. 20	46.99	Sept. 15	47.41	Aug. 11	47.48

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Some of the factors in this experience that are of particular interest to the business man in connection with fire insurance, have been recently embodied in our monograph S-11, "When Insurance Insures and When it Doesn't."

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INVESTIGATIONS VALUATIONS, REPORTS — INDUSTRIALS, PUBLIC UTILITIES, NATURAL RESOURCES

An American Appraisal
THE AUTHORITY

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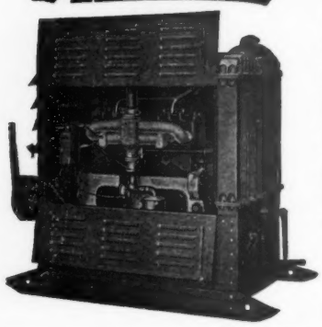
EQUIPPED WITH RICARDO CYLINDER HEAD

Right: The Power Take-Off
Below: The Industrial Unit

Waukesha
TRADE MARK



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Pittsburgh Boston New Haven New York Philadelphia
Cleveland Cincinnati Detroit Chicago St. Louis
Denver Salt Lake City Phoenix Wallace
Edw. L. Soule Co., San Francisco

INSTITUTE TO ELECT SOME NEW DIRECTORS

(Continued from Page 82)

John Mills, Richwood Oil Co., Marietta, Ohio.
R. J. Berry, Mid-Kansas Oil & Gas Co., Findlay.
J. W. Bird, Hawley & Bird, Bradford.
J. H. Warner, Jr., Warner-Caldwell Oil Co., Titusville.
George White, Permian Oil Co., Marietta, Ohio.
R. W. McIlvain, Pure Oil Co., Columbus, Ohio.
L. D. Mercer, Ray Oil Co., Bowling Green.
John A. Beck, Big Four Oil & Gas Co., Pittsburgh.
Ira L. Neely, Central Ohio Gas Co., Wooster, Ohio.
J. P. Shannon, Snowden & McSweeney Co., New York.
Edmond C. Breene, Winona Oil Co., Oil City.
J. Fred Miles, Swiss Oil Corp., Lexington, Ky.
S. Y. Ramage, Oil City.
Edward M. Wheeler, Eastern Oil Co., Buffalo.
M. L. Benedum, Benedum & Trees, Pittsburgh.
Warren A. Sinsheimer, H. L. Doherty & Co., New York.
J. E. Trainer, West Union, W. Va.
J. Fletcher Farrel, Sinclair Consolidated Oil Corp., New York.
F. A. Leavy, Gulf Oil Corp., Pittsburgh.
J. C. Trees, Arkansas Natural Gas Co., Pittsburgh.
F. H. Minard, Barnsdall Corp., New York.
John P. Herrick, Olean, N. Y.
S. A. Megeath, Somoset Oil Co., New York.
Fred G. Bannerot, United Oil Co., Pittsburgh.
J. K. Kerr, Ohio Oil Co., Marshall, Ill.
W. M. O'Connor, Atlantic Oil Prod. Co., Philadelphia.
Winfield C. Brower, Vacuum Oil Co., New York.
S. S. Burman, Sun Oil Co., Tiffin, Ohio.

Manufacturing Group

Pacific Coast (manufacturing) group: The term of office of H. R. Gallagher expires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
John Lander, Shell Co. of California, San Francisco.
A. C. McLaughlin, Associated Oil Co., San Francisco.
R. E. Haylett, Union Oil Co. of California, Los Angeles.
Lionel T. Barneson, General Petroleum Corp., Los Angeles.
Henry J. Bauer, Pacific Gasoline Co., Los Angeles.
R. J. Hanna, Standard Oil Co. of California, San Francisco.
F. C. Van Deinse, Ventura Refining Co., Los Angeles.
Paul Shoup, Pacific Oil Co., San Francisco.

Rocky Mountain (manufacturing) group: No nomination to be made at next annual meeting:

Councillors

(Nominating committee for this subgroup.)
Myron K. Blackmer, Refining Co., Denver.
John C. Howard, Utah Oil Refining Co., Salt Lake City.
F. B. Capen, The Texas Co., Casper.
F. E. Knoch, United Oil Co., Florence, Colo.
A. D. David, Mutual Oil Co., Denver.

Central United States (manufacturing) group: The term of office of J. S. Cosden expires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
W. W. Strickler, Lubrite Refining Co., St. Louis.
E. R. Perry, Cosden & Co., Tulsa.
Walter Miller, Marland Refining Co., Ponca City.
Lawrence B. Dunham, Clayton Oil & Gas Co., Dallas.
Gordon Meade Atherholt, Gulf Refining Co., Port Arthur.
Louis P. Samsol, Liberty Oil Co., New Orleans.
R. B. Kahle, Invincible Oil Corp., Shreveport.
E. R. Lederer, Louisiana Oil Refining Corp., Shreveport.
Edgar J. Marston, Texas Pacific Coal & Oil Co., Fort Worth.
C. L. Mayhall, Imperial Refining Co., Tulsa.
George N. Moore, Moore Refining Co., Chicago.
J. C. McDonald, Standard Oil Co. of Kansas, Neodesha.
C. C. Herndon, Skelly Oil Co., Tulsa.
D. R. Weller, Standard Oil Co. of Louisiana, Baton Rouge.
A. L. Derby, Derby Oil Co., Wichita, Kans.
E. W. Goebel, Kansas City, Refining Co., Kansas City, Kans.
Roy B. Jones, Panhandle Refining Co., Dallas.
W. B. Hamilton, Texhoma Refining Co., Wichita Falls.
H. C. Weiss, Humble Oil & Refining Co., Houston.
C. L. Henderson, Vickers Petroleum Co., Wichita.
E. R. Brown, Magnolia Petroleum Co., Dallas.
J. H. Miller, Miller Petroleum Co., Kansas City.
J. M. Cudahy, Sinclair Refining Co., Chicago.
W. E. Warwick, Standard Oil Co. of Indiana, Chicago.
T. J. Donoghue, The Texas Co., Houston.
George D. Locke, Barnsdall Refining Co., Chicago.
T. Nicolson, New Orleans Refining Co., New Orleans.
T. F. Lydon, Roxana Petroleum Corp., St. Louis.
L. L. Marcell, White Eagle Oil & Refining Co., Kansas City.
H. C. Cummins, Shaffer Oil & Refining Co., Chicago.
Pat Malloy, Constantin Refining Co., Tulsa.
L. E. Phillips, Phillips Petroleum Co., Bartlesville.
George C. Armstrong, Indian Refining Co., Lawrenceville, Ill.
Howard Bennette, Western Petroleum Refiners Association, Tulsa.
H. B. Earhart, White Star Refining Co., Detroit.
Waite Phillips, Waite Phillips Co., Tulsa.
Wirt Franklin, Cameron Refining Co., Ardmore.
W. L. Kistler, Producers & Refiners Corp., Tulsa.

Eastern United States (manufacturing) group: The terms of office of R. D. Benson, Edward Prizer and B. G. Dawes expire in 1924. Three nominations to be made at next annual meeting.

Councillors

(Nominating committee for this sub-group.)
E. M. Clark, Standard Oil Co. of New Jersey, New York.
D. Q. Brown, Tide Water Oil Co., New York.
C. E. Bedford, Vacuum Oil Co., New York.
E. W. Sinclair, Sinclair Consolidated Oil Corp., New York.
W. M. Irish, Atlantic Refining Co., Philadelphia.
Ralph C. Holmes, The Texas Co., New York.
M. A. Brewster, Penn American Refining Co., Oil City.
Louis Carruth, Canfield Oil Co., Cleveland.
Lewis Emery, Jr., Emery Manufacturing Co., Bradford.
S. Messer, James B. Berry's Sons Co., Oil City.
Fred G. Clark, Fred G. Clark Co., Cleveland.
A. K. Whitelaw, Standard Oil Co. of Kentucky, Louisville.
F. J. Cuthbert, Solar Refining Co., Lima.
O. E. Thurber, Interocean Oil Co., New York.
P. S. Tarbox, Ohio Valley Refining Co., St. Marys, W. Va.
H. J. Crawford, Emlenton Refining Co., Emlenton, Pa.
Llewellyn Howland, New England Oil Refining Co., Boston.
James A. Fawcett, Crystal Oil Works, Oil City.
George P. Brockway, Seneca Oil Works, Warren, Pa.
W. H. Foster, Standard Oil Co. of Ohio, Cleveland.
Frank Cross, The Sun Oil Co., Philadelphia
H. A. Logan, Elk Refining Co., Warren.
D. E. Weir, Waverly Oil Works, Pittsburgh.
U. G. Lyons, Conewango Oil Refining Co., Warren.
E. R. Ratcliff, Invincible Oil Co., New York.
L. J. Drake, Galena Signal Oil Co., New York.
E. F. Burch, Crew Levick & Co., Philadelphia.
Charles A. Niedrach, Henry L. Doherty & Co., New York.
Robert Law, Jr., Barnsdall Corp., New York.
Frank B. Fretter, National Refining Co., Cleveland.
Avery D. Andrews, Asiatic Petroleum Co., New York.
R. R. Govin, Interocean Oil Co., New York.
Lewis P. Litzinger, Butler County Oil Refining Co., Butler, Pa.
A. F. Anderton, Continental Refining Co., Oil City.
E. J. Bischoffberger, Freedom Oil Works, Freedom, Pa.
Herbert G. Wylie, Mexican Petroleum Corp., New York.
E. D. Robinson, Transcontinental Oil Co., Pittsburgh.

Distribution Group

Pacific coast (distribution) group: The term of office of K. R. Kingsbury expires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
H. T. Harper, Standard Oil Co. of California, San Francisco.
William Walker, General Petroleum Corp. Los Angeles.
Earl Derby, Pacific Oil Co., San Francisco.
E. Whitehead, Associated Oil Co., San Francisco.
R. A. Lewin, Shell Co. of California, San Francisco.
C. W. Ralph, Union Oil Co. of California, Los Angeles.
Trevitt W. Okey, Ventura Refining Co., Los Angeles.
C. M. Fuller, Richfield Oil Co., Los Angeles.
L. H. Johnson, Pennzoil Co., Los Angeles.

Rocky Mountain (distribution) group: No nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
E. S. Karstedt, Continental Oil Co., Denver.
H. G. Naylor, Midwest Refining Co., Denver.
A. J. Wollcott, Mutual Oil Co., Denver.
H. E. Johnston, Producers & Refiners Corp., Denver.
H. W. Dodge, The Texas Co., Denver.

Central United States (distribution) group: The terms of office of Robert W. Stewart and P. C. Crenshaw expire in 1924. Two nominations to be made at next annual meeting.

Councillors

(Nominating committee for this sub-group.)
Allan Jackson, Standard Oil Co. of Indiana, Chicago.
A. H. Caward, Hawkeye Oil Co., Waterloo.
F. H. Thwing, Lion Oil & Refining Co., Kansas City.
R. M. Moon, Imperial Oil Marketing Co., Tulsa.
William H. Cannady, Shaffer Oil & Refining Co., Chicago.
Sheldon Clark, Sinclair Refining Co., Chicago.

(Continued on Page 122)

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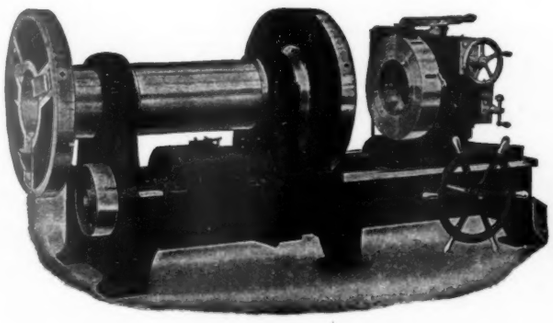

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Credit---Its Use and How It is Abused

Need of Executives to Handle This Important Function of Modern Business is Emphasized at Convention

By J. W. Hallman
Before National Petroleum Marketers Association

Credit is a temporary substitute for money in commercial transactions. In the subject of economics we have four main categories—production, consumption, exchange and distribution. Credit is necessary to, and closely related with, each of these economic processes, only because it is impractical to do business on a large scale on a cash on delivery basis. That is true because of the "time" element that enters into each of these economic processes. It will at once be seen, therefore, that where the element of "time" is eliminated from a transaction, the facility of credit does not enter into it. We have then the facility of a represented value projected to some time in the future (known as credit), which we temporarily substitute for cash in our commercial transactions.

The "time" element in credit is a very important factor—a factor that is often not thoroughly understood, and frequently misused. It is not enough to know or believe that a man will redeem his credit by payment of bills some time. The greatest percentage of credits must be redeemed according to terms of sale, if any grantor of credits is long to survive. Why is that true?

The question of net credit terms on any commodity is very closely related to the turnover of stock, and the question of stock turnovers is intimately related to the price of the commodity. So the question of "time" in the extension of credit is secondary only to money itself. This point cannot be too strongly emphasized. It is frequently the hidden, unappreciated cause of failure. When prices are based on 30-day terms, for instance, which should permit a capital turnover of at least eight or ten times a year, it makes a very great deal of difference in the success of a business if any considerable number of customers are permitted to pay their bills at the end of four or six months, and thereby permit a capital turnover of perhaps only two or three times a year. Bills must not only be paid, but they must be paid reasonably within terms of sale.

Credit Is Not Wealth

I believe that trade customs and sound business practices have correctly established the terms and policies under which given commodities can be successfully and profitably sold. Sound financing and sound credit extension definitely dictate the point beyond which a customer's credit should not, and cannot, be safely extended or terms modified.

So we learn that credit is a temporary substitute for money, and that after all credit is determined, is extended, and is governed by pretty definite and well defined principles and economic laws.

Now let us see what credit is not. Credit is not wealth. The idea that credit is wealth has been responsible for many mistakes of business judgment, resulting in pyramiding credits, one upon the others, until the thin foundation of real value has crumbled, and liquidation demands (demands for hard, cold cash) have revealed the difference between real value and merely represntative value. Credit is not money, it is not property, it is not material, it is not service, it is only representative of those things.

I often think of credit as the air in an automobile tire. In a business enterprise you have your organization, your machinery and equipment, and your product; these constitute the "casing" of your business, but you can't travel far without credit. So you arrange for some credit man to pump some credit (air) into your tire and you are all set to go. Now your tire is built to stand only a certain number of pounds of pressure. So long as you get credit men to keep you pumped up only to your capacity, you are all right and your tire is going to stand the bumps all right. But too many so-called business men and salesmen are not satisfied to go along successfully at a moderate rate of speed. They start to figure that if they can jam a little more credit air into that casing of theirs they can travel at greater speed and get more mileage out of their tire. So they locate some fool credit man, or get some proprietor to overrule his credit man, and they pump that tire up far beyond its intended capacity. They start down the road at an awful clip and soon outdistance the conservative fellow. But they soon strike some bad roads (maturing indebtedness, high expenses, sharp competition) and their over-inflated tire can't stand the pressure, and soon there is a blowout, the air is gone, and the tire is flat.

No business proprietor, no salesman, no credit man is doing himself or his customer a favor by over-extension of credit; it only means loss ultimately to the giver, the receiver and the public. Unfortunately the public usually has to pay for the mistakes of business men, and I don't know of any industry where there are more mistakes being made than in the extension of credits in the oil industry just now.

Credit Extension Often Bad

Let us see what happens, too often, when the sales manager (without financial investment in a business) dominates the extension of credits. He frequently finds himself met by keen competition so far as quality, service and prices are concerned; his sales are falling below the quota; his superior officers are driving him to move a fast accumulating stock of merchandise; his salary and commissions are dependent upon his sales; and he is distinctly "up against it." What does he do? What is the natural thing for him to do? He seeks a solution of his problem.

The management has placed in his hands the facility of credit extensions and terms. There is where he sees an avenue of escape; he can extend more liberal terms and accept a poorer grade of credit risks than his successful competitors are willing to extend and assume. Why should he not do so? He has no financial investment of his own in the business; and so he loosens up on credits and finds his problem solved; up go his sales; his superiors hail him as a successful sales manager and he is happy.

But, in the meantime, what is happening to the treasury of his company? Supply bills for raw materials, wages and salaries and other expenses have to be paid. The bank balance is growing smaller. The treasurer, in desperation, calls for funds. Where are they to come from? Where would anybody naturally suppose? By collecting on sales, of course. Have not sales been unusually good? Have not the salesmen been earning large sales bonuses? Has not business been booming, and the plant working overtime on orders? Why should the treasurer have to spoil all this splendid achievement by insisting upon having money? Better let the treasurer go for trying to spoil things. Everything is all right, but collections are poor, that's all.

But the treasurer is insistent. He says he has to have funds, that the bank account is threatening overdraft, and the bankers are after him. The only thing left to do is to borrow money, because they are "a little short on working capital, collections are poor, funds are tied up in frozen credits." It becomes necessary to float a loan to tide over a temporary condition, and also, it has become necessary to ask large creditors for an extension of time on supply bills. What a familiar tune that is, from some of these nearly successful, socalled, business men. Just another failure in the making, to be added to the ever mounting bad debt loss of the business of our country.

Function of Credit Department

Do I lay this error in principle to the door of salesmen? My answer is emphatically no! The function of credit extension may be asked for sometimes by salesmen to cover up lack of selling ability; but I believe salesmen are more frequently compelled to resort to this "invisible and intangible form of competition in terms and extensions" because of some other reasons. The point is that a credit department, operating directly under the officers of a company and independently of the sales department so far as employment is concerned, will bring to light (through intelligent handling of credits and collections as reflected in accounts receivable) mistakes of buying, of manufacturing, of marketing, of managing; will bring to light questions of incorrect price, of quality, of style, before it is financially too late to correct such mistakes. But when there is something wrong in one of these branches of a business (that sometimes almost prohibit success), and when a business management puts credit extensions into the hands of the selling force, is it not by that very act inviting its salesmen to use an "invisible and intangible form of competition" that ultimately at best means loss, and in many cases financial ruin?

The second principle I want to talk about is that of making credit and terms a matter of competition, or as I have already mentioned, using "an invisible and intangible form of competition in terms and extensions."

When a firm in a given industry these days, on a staple product, trys to best his competitors on accepted terms and discounts for that line or commodity in a given section, you may be assured the public will ultimately pay for his folly. It is good business in selling merchandise to give all the advantage you can in meeting competition fairly and squarely on quality, quantity, prices, service, etc. But it is bad business to grant unreasonable terms, in length of time or cash discounts, that have unpleasant reactions and make difficulties for legitimate merchandising. The quick turnover in receivables is just as important a function of a successful enterprise as a quick turnover in merchandise, and credit unduly stretched or inflated, always causes unpleasant and costly reactions.

Need Uniform Law

I cannot refrain from strongly advocating a uniform law in our several States on the subject of assignment or pledging of book accounts, or accounts receivable, similar to that in force in some of the Provinces of Canada. That law provides that every assignment or pledge of book accounts must be registered in the office of the registrar of the county court within which the assignor carries on his business, within five days from making the assignment, and failure to comply with this requirement, renders the assignment void as against parties whose interests are prejudiced thereby.

The third and last credit principle that is being greatly misused these days, is the violation of one of the very foundation stones of credit in the misuse of con-

(Continued on Page 124)

ONE BIG WELL ADVANCED DATE OF NEXT OSAGE SALE TO DEC. 18

Nearly 30,000 acres of Osage County land will be offered for lease for oil only at an auction in Pawhuska, Okla., on Thursday, December 18. Six Burbank tracts close to production will be put up, and altogether 2,240 acres on the west side of the county will come under the hammer, while 27,649 acres on the east side will be offered. The Burbank tracts include the northeast quarter of Section 20-26 6, northeast quarter of Section 21-26-6, northwest quarter of Section 21-26-6, southwest quarter of Section 2-27-5, northeast quarter of Section 11-27-5 and the southwest quarter of Section 12-27-5.

The announcement of the sale of leases came late Thursday following the news that the Phillips Petroleum Co. had brought in a well in the northeast corner of the southeast of the southeast quarter of Section 11-27-5 which started off at 840 bbls. the first hour, with a big flow of gas. The top of the sand was uncovered at 2,991 feet and the well broke loose with a one-hour flow that shattered all records for initial production in the Burbank Field. It did not hold up long at its 20,000-bbl.-a-day clip and in the first 24 hours of its existence put approximately 3,800 bbls. into the company's tanks.

Lease Making 10,000 Bbls. Daily

The new well brought the production of the lease up to more than 10,000 bbls. a day from 13 wells, and prompted the United States Department of the Interior to announce the sale notwithstanding that Osage oil operators have been doing their best to have the sale postponed until market conditions improve. The Interior Department could see only one thing, that being that the Phillips Petroleum Co.'s outside line of wells in the southeast quarter of Section 11-27-5 were such good producers that they might be seriously draining the adjoining quarter sections. The Phillips Petroleum Co. paid $505,000 or about $3,150 an acre for the lease at the sale held on June 30 and has perhaps expended another half million in drilling and lease operations and has been producing oil at a low market price for the brief time it has been in possession of the property, so it is a long way from paying out as yet.

Among the quarter sections to be auctioned will be one north and one west of the Phillips Petroleum Co.'s good piece, but for some reason the department will not offer the quarter section northeast of it, which is also subject to more or less drainage.

Big Money for Indians

Up to the close of 1923 in bonuses alone the Osage tribe had received $70,520,424.36 to which may be added $16,457,000 received in the receipts of the two sales held early this year. In rentals the tribe had received the sum of $731,313.24. In royalties on account of oil the tribe received prior to the year 1923, $44,048,488.32 and on account of gas $5,323,727.84. During the year 1923

(Continued on Page 124)

Mid-Continent Center of Oil Industry

Prosperity of Southwestern States Largely Due to Vast Growth of and Expenditures for Petroleum Production

By Pat Malloy

Before United States Chamber of Commerce, Memphis, Tenn., November 19.

The production of crude oil and its relation to the prosperity of the South and Southwest is plainly too great a subject to be presented in a single address. The result of the effort has been so far reaching in its effect that no adequate appraisement can be made of it. No man can set measure or limit to the influence that this development has made upon business everywhere. In its making, the very economics of the world have been recast and all business affected and set forward.

The production of petroleum has ceased to be a matter of mere individual or corporate interest. It cannot longer be regarded as a business in which the fortunes of a comparatively few are involved. The space of 20 short years has been sufficient to effect the change and to make of it a national interest. In that short period the business itself, through the force of unprecedented economic circumstances and change has become one of outstanding importance to the progress and the peace, and to the welfare of our country.

Southwest Is Real Source

The present petroleum production of the Mid-Continent Field has a meaning infinitely greater than the wealth or the prosperity of any single section or the fortune of any particular group. Its importance not only to the business, but to national and world policy may not be measured in terms of South or Southwest or by any other sectional classification. Its prosperity cannot be told in lengths of land, nor limited to the rich fields from which it flows and from where it is yet to come. Petroleum, if true value be put upon it, is the outstanding industrial development of the age. More and more it is destined to play a larger part in all of our trade, whether domestic or foreign.

The advance of the American petroleum industry from a secondary position to its present directing place in the progress of the country has been coincident —has indeed been made to depend in a very large measure upon the development of the petroleum resources of the Southwest. This stretch of rich oil territory reaches all the way from Kansas to the Gulf of Mexico—a full thousand miles or more. It comprises the States of Kansas, Oklahoma, Texas, Louisiana and Arkansas. The "Mid-Continent Field," is it is known to the industry, though rich in its present production is today but partially explored. If science and experience are to be relied upon, it holds today untouched and undiscovered, as sure security for our future needs, the richest oil deposits beneath the ground.

The production of this field is today, and has been these many years, the source from which the American petroleum industry has drawn its real strength and prepared itself to meet the growing markets of the world. It is the real basis upon which all its prices, whether for raw or refined material, are quoted. Its commerce directed. Its investments made. Its credit established, enlarged and made steady, and its whole broad policy of development and of trade, whether foreign or domestic, has been shaped and determined. It is and will long continue to be "the prop that doth sustain the house."

There is good reason for the place that the Mid-Continent Field holds in the industry. It may be read, for it is written in the business statistics of the land. Plainly enough in all the figures that the Government, with much labor and great care, has made and sent out for the information and guidance of all who wish to know. To borrow and adapt the slogan of the politician, it is only fair to say "that as the Mid-Continent goes, so goes the petroleum industry of the world."

Four and one-half million barrels was the total production of crude oil in what was then the Mid-Continent Field, in so recent a year as 1901. The country's entire production stood for the same period at the negligible figure of 60,000,000 bbls. Less than Oklahoma's contribution 12 years later for 1913. In 1906, five years after the field had won recognition, the Southwest produced over 40,000,000 bbls. and the country 126,000,000 bbls. For the Mid-Continent, crude oil development had then set in in dead earnest. The world was to call for petroleum and its products as it had never done before. The force of these new conditions which I have mentioned was already at work. Invention and the automobile industry had commenced to play its part. War upon a world basis was about to be brought forth and to set revolution afoot, not only in the Governments of mankind, but in every field of industry and business and human endeavor. The pressure of all this new condition and great change was now to be felt. The play of chemistry and geology and related science was at work to make complete the power and prestige of petroleum everywhere. With this revolution, went forward the development and exploration of the petroleum resources of the Southwest. It was of the stuff of this new order of things. A powerful agent itself in that forward movement of the day was to destroy old conditions and everywhere set up its own new standard of industry upon a gigantic scale.

Big Production Increase

Its oil production in the year 1913 was 90,000,000 bbls. The country itself had yielded only 248,000,000 bbls. By the time the Armistice had come this single field had increased its production a full 100,000,000 bbls. a year and the totals for 1918 stood at the staggering figures of 203,000,000 bbls. for the Mid-Continent and 335,000,000 bbls. for the United States. On the basis of available figures, Kansas, Oklahoma, Texas, Louisiana and Arkansas will yield in crude oil for the year 1924 nearly 400,000,000 bbls. More than 55 per cent of all the oil that will be brought to the surface in the whole United States for the same period, and nearly 40 per cent of total production of the world.

I venture the opinion that these results obtained in the Mid-Continent Field in the period given, is the outstanding achievement in the history of the development of any basic resource. In the short space of little more than twenty years—for the most part within a single decade—this single territory has brought above ground nearly 3,000,000,000 bbls. of crude oil. The genius that had wrought this wonder had in fact done more. It made ready and conditioned every barrel of the whole output and delivered it to market and received as reward for the effort in cash and credit, a full five billions of dollars—a sum that equals half the total worth of all the oil that has ever been found within the limits of these United States since the discovery of petroleum in Pennsylvania nearly 70 years ago.

Its Meaning to Prosperity

Here, then is some answer at least to the question of what the oil business has done in the southwest. What it has meant in the way of prosperity and what place and position it holds in the business affairs of the nation. The difference between 4,000,000 bbls. in 1901 and 400,000,000 bbls. in 1924 states in a sentence a phase at least of the progress of the Southwest in petroleum. To state that it has contributed a product of the earth within a period that is within the easy recollection of us all, the value of which in its raw material state has added $5,000,000,000 of value to the commerce of the country is an offer of strict proof of the dominant part it has played in provisioning not only America but the world with power and that in the years of the greatest demand.

The full effect of this effort of the Mid-Continent Field becomes clearer as it is backgrounded against what the rest of the world has been able to do in the matter of producing crude oil. The total production of all countries for 1923 was, roughly, 1,000,000,000 bbls., and that of every grade. South America produced 1.6 per cent of the whole. Europe about 5½ per cent. Asia a little less. Mexico something over 14 per cent and the United States of America 73 per cent, or a total in barrels for that year of 732,407,000. Of this amount the Mid-Continent Field contributed 387,731,000 bbls., or 53 per cent of the total production of the United States. Nearly 40 per cent of all the production of all countries engaged at all anywhere in the enterprise.

Far Exceeds Russia

At the end of 1923 the genius and adventure of the men of the southwest country, at uncounted cost and unstated hazard, had brought to the markets of the world 50 per cent more crude oil than Russia had ever produced. Three times as much as Mexico. Five times as much as Asia. More barrels of this valuable, previous product than all Europe had ever brought to the surface of the earth. Although its real development did not set in until something less than 15 years ago, it has, nevertheless, in that space of time produced and made ready for market one quarter of all the crude oil developed and recovered from the sands.

From out of this single field more than a million barrels of high content gasoline crude oil run into the arteries of our trade every 24 hours. Three hundred or more modern, efficient and well equipped refining plant have been built and put in operation at a cost of $325,000,000. Eighty thousand tank cars representing a construction cost of $160,000,000, make up a transportation fleet that carries the products of petroleum along the long trade routes of the railroad to the centers of population and beyond. Gasoline and fuel oil and lubricants are thus made available to all trade and to every city and hamlet in the land. Seventy-five thousand miles of trunk pipe lines, equipped to take care of every barrel of the production and to reach every new field upon the instant of discovery, carry the crude oil of the Mid-Continent Field to the plants of manufacture in the field and all the way across the continent to supply the mammoth refineries that are situated on deep water, on our Great Lakes and at Atlantic and Gulf seaboard. Five hundred millions of dollars must be spent every year in the development and enlargement and maintenance of the petroleum industry in the Mid-Continent Field.

The Mid-Continent Field is today and shall long continue to remain the seat of petroleum empire itself!

Western civilization must look to the American States of Kansas, Oklahoma, Texas, Louisiana and Arkansas if it is to be provisioned with petroleum products for tomorrow. California's 600,000 bbls. of daily production and the products that come from it, must find its market along the Western coast of the continent and its surplus outlet to the Orient. On this side of the Rocky Mountains—outside of the Mid-Continent Field—the United States can only depend upon a scant 200,000 bbls. of daily oil production. Europe—"reparationed" and repairing Europe—if we exclude Soviet Russia, produced for the whole year of 1923 a little better than 20,000,000 bbls. of crude oil. Sixteen million barrels less than the production of the single State of Arkansas—the youngest and most insignificant State, in point of oil production, in the Mid-Continent group.

Policy of Government

Petroleum, as I have repeatedly pointed out, is so essential to our commercial supremacy, to the maintenance of our very institutions that there must not be any mistake in the policy of our Government toward it. To its interest, towards its enlargement, to the single end that it may be fostered, protected and preserved, the whole full policy of the nation and that of its every State must be written. The enterprise is so big, so vital to national interest, so near to the very fortunes and well being of our every citizen that it must not suffer in a single circumstance from the organized effort of a wilful or ambitious few. It is—as every thoughtful man must know—the full fruitage of a distinctive, economic principle of our country. The doctrine of personal initiative and private enterprise as distinguished from Government ownership or control. It is the imperative dictate of wise counsel and of common sense that to private enterprise and investment and control must its future be committed and confirmed. Law and its administration, if it shall serve itself and the public welfare and promote the prestige of America, shall be drawn and executed in its relation with the petroleum business upon that wise and familiar principle of democracy to which America has always been dedicated:

"That law governs best which governs least."

I dare to serve notice upon ignorant propagandists everywhere that the American oil man stands ready not only to defend his investment but to contend in every form for the establishment of an affirmative, active and cooperative national petroleum policy. In all the scheme for any wise public opinion that shall be made there can be no place for the slightest influence of the designing or ambitious politician. Our tariffs, our taxes, the basis of railroad rate structures, international treaties and agreements must be drawn, set up and declared for the aid and assistance of the American petroleum industry that its investments may be made safe, its prosperity permanent and its progress assured.

The interests of America and her Mid-Continent oil fields are identical. The industry itself is made of the stuff and the genius and the spirit of America. Its burdens in all things must be lessened and made easy. Its power marshalled. Its force multiplied and its self made able and ready and free to lead the way for America along the paths of a still greater progress towards permanent and more general prosperity—to a more enduring peace and good will upon this earth and among all its peoples.

WYOMING OIL TAX LOST

CASPER, Wyo., Nov. 15.—The proposed constitutional amendment, levying a production tax on oil and minerals in Wyoming, was lost at the last election.

Now your tire is built to stand only a

to announce the sale notwithstanding that

(Continued on Page 124)

(Continued on Page 124)

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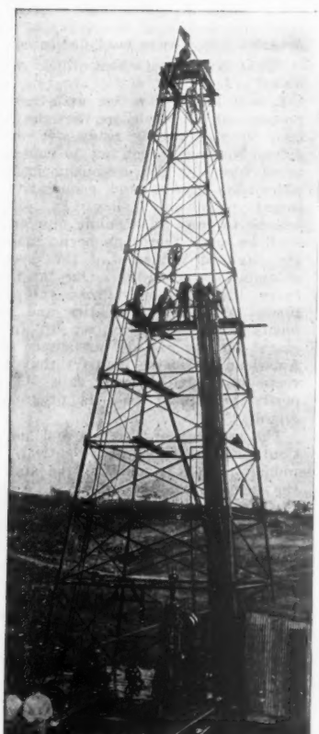
Los Angeles—Union Bank Bldg.

Deep Tests and the Diamond Core Drill



This Diamond Drill struck oil in the Tampico district at 1,842 ft.

Use the diamond core drill for deep tests in virgin territory.

The cores secured will show accurately the presence or absence of oil, and the thickness and relation of all strata.

The drill will handle rapidly any formation encountered, giving you speed in either "cable" or "rotary" ground. It will handle mud fluid. It will control heavy rock or gas pressure, without damage or loss.

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Ask for Bulletin 1580-O

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INSTITUTE TO ELECT SOME NEW DIRECTORS

(Continued from Page 118)

Carl O. Beroth, Acme Petroleum Co., Chicago.
A. H. Richardson, Standard Oil Co. of Nebraska, Omaha.
E. J. Bullock, Standard Oil Co. of Indiana, Chicago.
George Gould Woodruff, Roxana Petroleum Corp., St. Louis.
B. H. Anglin, Indian Refining Co., Lawrenceville, Ill.
A. C. Ebie, Magnolia Petroleum Co., Dallas.
C. W. Cahoon, Carson Petroleum Co., Chicago.
Harry T. Snell, The Texas Co., Chicago.
A. J. Callaghan, American Oil Corp., Jackson, Mich.
H. L. Freeman, Lake Park Oil Corp., Sioux Falls, S. D.
Elliot T. Jones, Elliot T. Jones & Co., Inc., San Antonio.
T. C. Anderson, Liberty Oil Co., New Orleans.
Lafe Collins, L. S. Collins Co., Knoxville, Iowa.
John F. Campion, Tulsa.
D. W. Moffitt, Cosden & Co., Tulsa.
D. F. Connelly, D. F. Connelly Agency, Inc., Tulsa.
L. F. Kuehnle, Leader Oil Co., Dubuque, Iowa.
S. S. Cramer, Wadhams Oil Co., Milwaukee.
C. A. Gustafson, C. A. Gustafson & Co., Chicago.
N. M. Mahr, Louisiana Oil Refining Corp., Shreveport.
Aubrey G. Maguire, Bartles-Maguire Oil Co., Milwaukee.
Frank M. Smith, Oriental Oil Co., Dallas.
H. G. James, Missouri Oil Jobbers Association, Kansas City.
R. R. Irwin, White Eagle Oil & Refining Co., Kansas City.
Oscar H. Muller, Jr., Pure Oil Co., Chicago.
John T. Berry, Home Oil & Supply Co., Kansas City.
M. G. Billingslea, White Star Refining Co., Detroit.
C. L. Maguire, Northland Oil Co., Chicago.
T. J. Gay, Gay Oil Co., Little Rock
Albert R. Jones, Kansas City Refining Co., Kansas City.
G. R. Slocum, Skelly Oil Co., El Dorado.
M. G. Eitelman, Barnsdall Refining Co., Kansas City.
Paul E. Hadlick, Minnesota Petroleum Association, Minneapolis.
F. H. Buehler, South Dakota Independent Oil Jobbers' Association, Madison, S. D.
John B. Atkins, Jr., Shreveport Producing & Refining Corp., Shereveport.
L. L. Coryell, L. L. Coryell & Son, Lincoln, Neb.
I. G. Abney, Chalmette Petroleum Corp., Shreveport.
W. S. Bilby, B. & L. Oil Co., Fairbury, Neb.
Oscar J. Tuttle, Empire Refineries, Inc., Tulsa.
William H. Merritt, Bartles Oil Co., St. Paul.
Clyde Alexander, Phillips Petroleum Co., Bartlesville.
W. E. Perdew, Derby Oil Co., Wichita, Kans.

Eastern United States (distribution) group: The term of office of A. C. Woodman expires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
Robert H. Blackburn, Blackburn Oil Co., Spartansburg, S. C.
A. J. Millns, Standard Oil Co. of Ohio, Cleveland.
W. H. Fehsenfeld, Red "C" Oil Co., Baltimore.
Henry Fisher, Standard Oil Co. of New York, New York.
Frederic Ewing, Mexican Petroleum Corp., New York.
Byron D. Benson, Tide Water Oil Co., New York.
Harry C. Carr, Sun Oil Co., Philadelphia.
R. D. Upham, Interocean Oil Co., New York.
Norton H Weber, Pure Oil Co., Philadelphia.
W. J. Patterson, Atlantic Refining Co., Pittsburgh.
H. E. Mills, C. E. Mills Oil Co., Syracuse.
James D. Berry, James B. Berry's Sons Co., Oil City.
H. L. Wollenberg, Beacon Oil Co., Boston.
S. W. Coons, Standard Oil Co. of Kentucky, Louisville.
G. W. Mayer, Standard Oil Co. of New York, New York.
C. E. Woodbridge, The Texas Co., New York.
J. W. Carnes, Sinclair Consolidated Oil Corp., New York.
Charles A. Niedrach, H. L. Doherty Co., New York.
R. Maurice Shanklin, Crew Levick Co., Philadelphia.
Rome E. Goodwin, Paragon Refining Co., Toledo.
Alexander Fraser, Asiatic Petroleum Co., New York.
George B. Cross, Cities Service Oil Co., Cleveland.
R. P. Byles, Galena Signal Oil Co., Franklin, Pa.
O. D. Robinson, Transcontinental Oil Co., Pittsburgh.
P. J. Bayer, Bayerson Oil Works, Erie, Pa.
William E. Wall, Cleveland.
G. R. Nutty, Gulf Refining Co., Pittsburgh.
B. H. Bramlage, Kentucky Independent Oil Co., Covington, Ky.
James H. Brookmire, Shell Union Oil Corp., New York.
Arthur C. Budd, Craig Oil Co., Toledo.
George J. Willock, Waverly Oil Works, Pittsburgh.
J. H. Romer, Prudential Oil Corp., New York.

Transportation Group

Ships. The term of office of J. Howard Pew expires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
J. N. Pew, Jr., Sun Oil Co., Philadelphia.
Robert L. Hague, Standard Oil Co. of New Jersey, New York.
F. S. Fales, Standard Oil Co. of New York, New York.
Paul H. Harwood, Pan-American Petroleum & Transport Co., New York.
Ernest Smith, Vacuum Oil Co., New York.
J. C. Rohlfs, Standard Oil Co. of California, San Francisco.
R. C. Tuttle, Atlantic Refining Co., Philadelphia.
George B. Drake, The Texas Co., New York.
F. A. Bailey, Matson Navigation Co., San Francisco.
Henry A. Gilbert, Interocean Oil Co., New York.

Pipe Lines. The term of office of J. E. O'Neil expires in 1924. One nomination to be made at next annual meeting.

Councillors

(nominating committee for this subgroup.)
C. H. Kountz, Prairie Oil & Gas Co., Independence.
T. B. Greene, Buckeye Pipe Line Co., New York.
D. S. Bushnell, New York Transit Co., New York.
R. A. Miller, Indiana Pipe Line Co., New York.
F. R. Applegate, Northern Pipe Line Co., New York.
Charles Shumaker, Crescent Pipe Line Co., Pittsburgh.
Forrest M. Towl, Eureka Pipe Line Co., Oil City.
R. E. Maynard, General Pipe Line Co. of California, Los Angeles.
William P. Gage, Humphreys Pure Oil Pipe Line Co., Dallas.
M. B. Daly, East Ohio Gas Co., Cleveland.
E. C. Kincade, Gulf Pipe Line Co., Houston.
C. O. Scholder, Standard Oil Co. of Louisiana, New Orleans.
E. H. Leroux, Oklahoma Pipe Line Co., Muskogee.
W. A. Miller, Illinois Pipe Line Co., Findlay.
W. M. Cleaves, Humble Pipe Line Co., Houston.
J. R. Manion, Sinclair Pipe Line Co., Tulsa.
F. D. Williams, National Transit Co., Oil City.
R. A. John, Texas Pipe Line Co., Houston.
D. O. Towl, Tuscarora Pipe Line Co., New York.
J. W. Vandegrift, Southern Pipe Line Co., Oil City.
Allan T. Towle, Cumberland Pipe Line Co., Winchester, Ky.
C. H. Jay, Pure Oil Pipe Line Co., Columbus.
J. J. Wilt, Standard Oil Co. of California, Bakersfield.
R. P. Bascom, Ozark Pipe Line Co., St. Louis.

Tank Cars. No nominations to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
L. H. Benner, Standard Oil Co. of New York, New York.
F. W. Blotz, National Petroleum Association, Cleveland.
B. J. Burchett, Shaffer Oil & Refining Co., Chicago.
S. G. Casad, Standard Oil Co. of California, San Francisco.
David Copland, General American Tank Car Corp., Chicago.
C. B. Ellis, Gulf Refining Co., Pittsburgh.
E. A. Fall, Interocean Oil Co., New York.
Henry Hauseman, Pure Oil Co., Columbus.
A. C. Holmes, Empire Refineries, Inc., Tulsa.
Charles Ervin, The Texas Co., New York.
L. F. Jordan, Pennsylvania Tank Car Co., Sharon, Pa.
W. W. Klingensmith, Transcontinental Oil Co., Pittsburgh.
C. H. Lown, Imperial Oil, Ltd., Toronto.
W. E. MacEwen, National Refining Co., Cleveland.
R. H. McElroy, Standard Oil Co. of Indiana, Chicago.
B. C. McPherson, The Sun Co., Philadelphia.
W. I. Nokely, Paragon Refining Co., Toledo.
R. E. Stewart, Barnsdall Refining Co., Tulsa.
L. D. Summerwell, Kansas City Refining Co., Kansas City.
H. C. Mulroy, Marland Refining Co., Ponca City.
P. R. Naylor, Continental Oil Co., Denver.
J. M. O'Day, Sinclair Refining Co., New York.
R. W. Ostrander, Standard Oil Co. of New Jersey, New York.
C. A. Porter, Indian Refining Co., Lawrenceville, Ill.
E. H. Porter, Atlantic Refining Co., Philadelphia.
J. D. Rearden, Union Oil Co. of California, Los Angeles.
H. W. Roe, Cosden & Co., Tulsa.
E. C. Sicardi, Union Tank Car Co., New York.
E. W. Sieboldt, Roxana Petroleum Corp., St. Louis.
A. M. Stephens, Standard Oil Co., of Kentucky, Louisville.
W. A. Wareing, Standard Oil Co. of Ohio, Cleveland.
J. S. Wood, Mexican Petroleum Corp., New York.
C. E. Donaldson, Shell Co. of California, San Francisco.
W. S. Flaws, General Petroleum Corp., Los Angeles.
G. D. Zeh, Pacific Oil Co., San Francisco.
A. F. Winn, Midland Refining Co., El Dorado, Kans.
E. H. Shelley, Tide Water Oil Co., New York.
H. R. Smith, Great Southern Refining Co., Lexington, Ky.

Supply Group

The term of office of A. A. Moody ex-

(Continued on Page 126)

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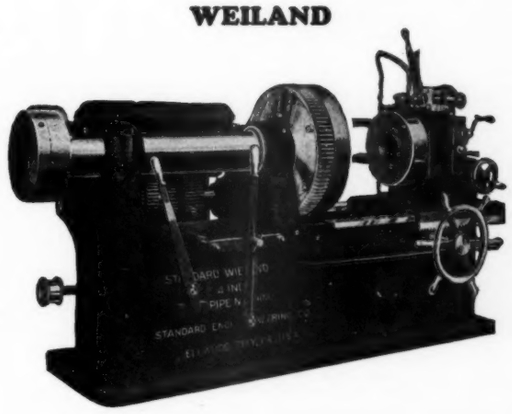

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Kansas City, U. S. A.

Tulsa, Okla. **Dallas, Texas** **Denver, Colo.**

WELL ADVANCED DATE OF NEXT OSAGE SALE

(Continued from Page 120)

the tribe received royalties on account of oil amounting to $11,996,360.96 and on account of gas, $1,013,507.24. Up to the close of last year the Osages had received in bonuses and rentals $71,251,737.60 and in royalties on account of oil and gas $62,382,084.36. What they will have got by the close of this year is entirely problematical but the two sales of leases early this year brought them $16,457,000 and the coming one will add another tidy sum to the total even though it is a comparatively small sale. Their 1924 royalties will also run large as the production of Osage County this year has been well sustained owing to the comeback of the Burbank Field and the large Wilcox sand production in the Hominy district.

Burbank Outstanding Pool

The outstanding oil pool on the reservation is the Burbank Field. About 60 per cent of the present and probable area of the Burbank Pool lies within the Osage Reservation. The remainder of it extends across the western boundary line of the reservation and lies within what formerly was known as the "Kansas" or "Kaw" Indian Reservation. The latter area has been allotted amongst the members of the tribe. Most of the Kaws, however, have conveyed their lands. The mineral rights passed with the allotment and subsequent conveyances

On the Osage reservation, the Bartlesville sand is the principal producing horizon. It obtained its name from the fact that it was first explored and found productive near the present city of Bartlesville, Washington County, Oklahoma. In its broad sweep and extent, this sand underlies not only the entire Osage Reservation, but much of the surrounding country. At points it pinches out, but in the main it is a mother sand varying in thickness and covering the region mentioned. On account of topography and the regional westward and southwestward dip, it is not found at a uniform depth. It ranges from 1,000 feet in depth near the northeast corner of the reservation, to 2,900 feet at the northwest corner. In the southwest corner of the reservation it is somewhat deeper. The Cleveland and the Peru sands, successively are found above the Bartlesville sand. These are not so extensive, continuous, or productive. The Wilcox sand lies below the Bartlesville sand, likewise it is not so extensive, continuous or productive as the Bartlesville sand. However, at various points within the reservation, these sands also produce oil, as well as gas, in commercial quantities.

Osage a Rough Country

The Osage Reservation, in the main, is a country of bold topography. The surface is literally covered with ridges of limestone and sandstone. On account of the presence of these exposures, geological determination and study of the region has been comparatively simple. The United States Geological Survey has surveyed and mapped geologically the surface of the entire reservation. In addition, each major oil operator, it is believed, has mapped all, or a major portion, of the reservation. Many of the smaller operators also have mapped geologically large areas of the country.

The present daily oil production upon the Osage reservation is approximately 98,000 bbls.

East of Range 7

Following is the description of land to be offered east of Range 7:

Tract No.	Description	Acreage
1	SW 4-28-12	160
2	SE 6-28-12	160
3	NE 7-28-12	160
4	NE 30-28-12	160
5	SE 30-28-12	160
6	NE 33-28-12	160
7	SE 33-28-12	160
8	NE 25-20-11	160
9	NW 28-21-11	160
10	NE 30-21-11	160
11	NW 30-21-11	160
12	SE 10-22-11	160
13	SW 13-22-11	160
14	SE 13-22-11	160
15	NE 24-22-11	160
16	NW 4-27-11	160
17	NW 10-27-11	160
18	NW 16-17-11	160
19	SW 16-27-11	160
20	NE 8-28-11	160
21	SE 8-28-11	160
22	NW 10-28-11	160
23	NW 18-28-11	160
24	SE 24-28-11	160
25	NE 28-28-11	160
26	SW 28-28-11	160
27	NW 34-28-11	160
28	SW 34-28-11	160
29	NE 25-29-11	160
30	SE 25-29-11	160
31	SE 33-29-11	160
32	SW 4-20-10	160
33	SW 13-20-10	160
34	NE 14-20-10	160
35	NW 28-20-10	160
36	SW 28-20-10	160
37	Fr. N½ 29-20-10	65.15
38	SE 29-20-10	160
39	Fr. SW 29-20-10	64.58
40	SE 7-21-10	160
41	SW 8-21-10	160
42	NE 14-21-10	160
43	NW 22-21-10	160
44	SE 29-21-10	160
45	SW 9-22-10	160
46	NW 10-22-10	160
47	SW 30-22-10	160
48	NW 6-23-10	160
49	SW 6-23-10	160
50	NW 1-25-10	160
51	SE 1-25-10	160
52	NW 2-25-10	160
53	SW 2-25-10	160
54	NE 12-25-10	160
55	SW 4-26-10	160
56	SE 5-26-10	160
57	NW 10-26-10	160
58	SE 10-26-10	160
59	SE 17-26-10	160
60	NE 33-26-10	160
61	NW 33-26-10	160
62	SW 33-26-10	160
63	NE 6-27-10	160
64	SE 6-27-10	160
65	SW 6-27-10	160
66	NW 18-28-10	160
67	SW 18-28-10	160
68	NE 28-28-10	160
69	SE 28-28-10	160
70	NW 6-21- 9	160
71	SW 6-21- 9	160
72	NW 7-21- 9	160
73	NW 14-21- 9	160
74	SW 14-21- 9	160
75	NE 3-23- 9	160
76	NW 3-23- 9	160
77	SE 25-23- 9	160
78	SW 25-23- 9	160
79	SW 28-25- 9	160
80	NW 2-26- 9	160
81	SW 2-26- 9	160
82	SE 19-26- 9	160
83	NE 21-26- 9	160
84	SE 21-26- 9	160
85	SE 1-27- 9	160
86	SW 1-27- 9	160
87	NE 4-27- 9	160
88	NW 4-27- 9	60
89	SE 8-27- 9	160
90	SW 9-27- 9	160
91	SW 15-27- 9	160
92	NE 29-27- 9	160
93	NW 29-27- 9	160
94	NE 32-27- 9	160
95	NW 32-27- 9	160
96	NW 1-28- 9	160
97	SW 1-28- 9	160
98	NW 17-28- 9	160
99	NE 18-28- 9	160
100	SE 18-28- 9	160
101	NE 29-28- 9	160
102	NW 29-28- 9	160
103	SE 31-28- 9	160
104	SW 31-28- 9	160
105	NE 24-29- 9	160
106	SE 24-29- 9	160
107	NW 25-29- 9	160
108	NE 30-29- 9	160
109	NE 31-29- 9	160
110	NW 34-29- 9	160
111	SE 1-21- 8	160
112	NW 2-28- 8	160
113	SW 2-22- 8	160
114	SE 7-22- 8	160
115	SW 7-22- 8	160
116	NE 35-23- 8	160
117	NW 35-23- 8	160
118	NE 12-24- 8	160
119	SE 12-24- 8	160
120	SE 1-25- 8	160
121	NW 6-25- 8	160
122	SW 6-25- 8	160
123	SE 12-25- 8	160
124	SW 13-25- 8	160
125	SE 15-25- 8	160
126	SW 15-25- 8	160
127	SE 20-25- 8	160
128	NW 31-25- 8	160
129	SW 31-25- 8	160
130	NE 2-26- 8	160
131	NW 2-26- 8	160
132	NE 6-26- 8	160
133	NE 7-26- 8	160
134	NE 10-26- 8	160
135	SW 13-26- 8	160
136	NW 16-26- 8	160
137	SE 19-26- 8	160
138	SW 19-26- 8	160
139	NE 21-26- 8	160
140	NE 24-26- 8	160
141	SE 1-27- 8	160
142	SW 1-27- 8	160
143	NE 4-27- 8	160
144	SE 4-27- 8	160
145	SW 9-27- 8	160
146	NE 12-27- 8	160
147	SE 15-27- 8	160
148	NE 22-27- 8	160
149	NE 26-27- 8	160
150	NW 26-27- 8	160
151	SE 26-27- 8	160
152	SW 26-27- 8	160
153	SE 36-27- 8	160
154	SW 36-27- 8	160
155	SE 2-28- 8	160
156	NE 7-28- 8	160
157	SE 7-28- 8	160
158	SE 13-28- 8	160
159	SE 20-28- 8	160
160	NE 24-28- 8	160
161	SE 28-28- 8	160
162	SW 28-28- 8	160
163	NE 29-28- 8	160
164	SE 29-28- 8	160
165	NE 14-29- 8	160
166	NW 14-29- 8	160
167	SE 14-29- 8	160
168	SW 14-29- 8	160
169	NW 18-29- 9	160
170	NE 21-29- 8	160
171	NW 22-29- 8	160
172	SW 28-29- 8	160
173	NE 34-29- 8	160
174	NW 34-29- 8	160
		27,649.73

West of Range 8

Tract No.	Description	Acreage
175	NW 18-29- 7	160
176	SW 18-29- 7	160
177	NE 20-26- 6	160
178	NE 21-26- 6	160
179	NW 21-26- 6	160
180	SW 2-27- 5	160
181	NE 11-27- 5	160
182	SW 12-27- 5	160
183	NE 3-28- 5	160
184	SE 3-28- 5	160
185	NE 20-25- 4	160
186	NW 20-25- 4	160
187	SE 20-25- 4	160
188	SW 20-25- 4	160
		2,240

Late Fields

NORTH TEXAS

After coming in unexpectedly late Saturday evening and putting considerable oil into earthen storage, the wildcat oil well of the Big Indian Oil & Development Co., on the Bud Davis farm, 12 miles northeast of Gainesville, in Cooke County, returned to its normal stage during the night and did not flow Sunday. The sand has been barely scratched, it is reported, and deeper drilling has been deferred for fear of unseating the packer put into the hole to shut off the water. Despite this, the drillers persist that the wildcat will be a paying well.

KENTUCKY

The Pure Oil Co. reports the completion of a gas well, making more than 5,250,000 feet a day, in Magoffin County, Kentucky. The well was a test on a small lease in the center of the company's holdings in that State, which amount to approximately 6,800 acres.

OKLAHOMA

The Wentz Oil Corp.'s No. 46 McKee, NE cor. SE SW, Section 34-25-1w, Tonkawa Field, Oklahoma, was drilling in sand topped at 4,270 feet and flowing 150 bbls. an hour. The Blackwell Oil & Gas Co.'s No. 3-C McDaniel, NW cor. SE NE, Section 34-25-1w, was flowing 53 bbls. an hour at 24 feet in sand found at 4,010 feet. The Comar Oil Co.'s No. 4 Endicott, NE cor. NW SE, Section 34-25-1w, was drilled deeper with a big increase in production. It got sand at 4,040 feet and had been producing 2,000 bbls. a day, but when drilled to 4,118 feet, 78 feet in the sand, it increased to 5,700 bbls. and most of the increased production came from the last 3 feet or from 4,115 to 4,118 feet.

The Independent Oil & Gas Co.'s No. 1 Alexander, NW cor. NE, Section 2-9-9, Seminole County, was flowing 111 bbls. an hour on Monday from sand at 3,325 feet, drilled in 11 feet. The Central National Oil Co.'s No. 4, C S half SE NW SE, Section 4-10-8, Cromwell Pool, Seminole County, was flowing 107 bbls. an hour from sand at 3,396-3,456 feet.

The Gladys Belle Oil Co.'s No. 1 Clinton, NE cor. NW SE, Section 16-14-7, Creek County, was at a total depth of 4,056 feet with a hole full of water and no show of oil.

The deep sand production of the Tonkawa Field on Monday was 82,694 bbls. from 44 wells; on Sunday 80,495 bbls. from 44 wells; on Saturday, 74,176 bbls. from 42 wells. Tonkawa deep wells on Monday were averaging approximately 1,880 bbls. per well per day.

The Independent Oil & Gas Co., after setting 4¾-inch casing at 3,770 feet in its No. 1 Earp, SE cor. NE SE, Section 6-15-6, Lincoln County, drilled 7 feet deeper and went through the sand into shale and the production of the well was increased to 245 bbls. a day. It had been flowing steadily at the rate of 192 bbls. a day at a total before the deeper drilling. The Magnolia Petroleum Co.'s No. 1 Smith, SW cor. SE, Section 34-15-5, was flowing 150 bbls. a day on Monday.

The most productive lease in the Cromwell Pool at present is the Sinclair Oil & Gas Co. & Transcontinental Oil Co.'s 80 acres, the west half of the southwest quarter of Section 9-10-8, which on Tuesday was yielding 6,056 bbls. a day from six wells. The Prairie Oil & Gas Co.'s four new wells in the southwest quarter of Section 8 are producing 3,445 bbls. and the Central National Oil Co.'s five wells in the southwest quarter of Section 4 were making 4,500 bbls. The six outside wells on the west side of the field, in a north and south line, are producing 6,197 bbls.

The Magnolia Petroleum Co. is laying a 4-inch line to the Holm & Jarvis No. 1 Cobb, NE cor. SE NE, Section 7-9-8, which has not yet been completed.

W. R. Ramsey's No. 1 Salinda, C NE NW SE, Section 31-8-8, Wewoka Field, was flowing at 40 bbls. an hour on Tuesday from sand at 3,230 feet drilled in 11 feet.

J. C. Cook reports that his No. 1 De Lasier, SE cor. SW SW, Section 15-14-4, Lincoln County, has sand at 2,974 to 3,003 feet, which he thinks is the Pery, and that the hole has filled 2,000 feet with oil. Cook believes the well would make a 50 to 75-bbl. pumper as it stands.

MEXICO

TAMPICO, Mex., Nov. 16.—Huasteca Petroleum Co.'s (Mexican Petroleum) Nos. 30 and 32, in the Tierra Blanca sector of the South Fields, have both been completed, the latter rated by the company as having a potential head of 50,000 bbls. No. 30 is a 1,000-bbl. well, finished at a subsea level depth of 2,032 feet; No. 32 was finished at a subsea level of 2,012, reasonably shallow for the sector.

Up in Cerro Azul, Huasteca's No. 48 is showing for a good well. It commenced to make some dry gas at 1,775 feet. The drill stopped at 1,777 feet, in the Tamasopa limestone, where the volume of gas was reckoned as much as 15,000,000 feet. Now oil has followed the gas and a late unofficial report puts the oil volume at around 5,000 bbls. The subsea level at the surface depth noted is only 1,147 feet, which is extremely shallow for even this shallow pool.

CREDIT—ITS USE AND HOW IT IS ABUSED

(Continued from Page 120)

fidential credit information for sales purposes. There is nothing more despicable or unfair in the annals of professional ethics than this dishonest and underhanded practice. If the interests of honest business and public welfare are to be well served, there must be a free exchange of confidential credit information between credit men and bankers.

An Executive's Job

In summing up, let me say that I believe the time has arrived when modern business demands high class credit executives to handle this important, and ever increasingly intricate branch of merchandising. It is no longer a job for a clerk or a bookkeeper to handle as a part of his work; it has developed into an executive's job. If a man is not capable of handling this work he has no right to the job at any price. But when a man is put on the job, capable of handling it, he should be free from the dominance of the selling branch in rendering credit decisions; he should not permit the use of unreasonable credit extensions and terms as a matter of competition; and above all, he should have that high sense of honor that will not let him stoop (even at the expense of a job) to that low level where he violates the confidence of a fellow credit man for the temporary benefit of his own house.

DEATH OF JOHN SINCLAIR

CHATHAM, Ont., Nov. 15.—John Sinclair, the oldest citizen of Petrolia, died recently, in his ninety-second year. Mr. Sinclair came to the boom town of Petrolia in 1866 and engaged for many years in the building of pumping rigs. In 1876 he took charge of a number of agencies securing men for foreign drilling and contributed largely to the development of the corps of foreign drillers for which Petrolia is famous. Mr. Sinclair also engaged in oil production for a few years.

CHICAGO LOOKS FOR HIGHER OIL PRICES

(Continued from Page 100)

companies are booking orders for future production and will gradually increase their output, textile manufacturers are getting ready for the next season and so it goes, it is between times on many of the important industries.

Tank Wagon Stationary

Tank wagon prices have not been changed in the territory of the Standard Oil Co., (Indiana) and while there are general reports, some very definite as to the date and the amount of the increase, no change has been announced and the belief of many of the best oil men is a change will have to be made in crude before the tank wagon prices are raised. Many of the oil men would much prefer to have present prices hold during the winter as they say any increase in the rates will make the business attractive to a lot of new individuals and concerns and increase the local competition which was largely to blame for the cut prices and unsettled conditions during the summer. It is the beginners in the business that are responsible for the local cuts nine times out of ten. The older and well established companies compete keenly for the business but not by cutting prices. They may spend all or even more than their profits on occasions in the way of advertising and inducements but when they are through with the progress of expansion they have a profit left in the business by holding to a margin between the cost and selling prices.

KANSAS FIELDS

(Continued from Page 38)

Section 8-25-9, drilling below 400 feet; Cary & Logan's No. 1 Brown, NW cor. NE, Section 30-25-13, a rig; Skelly Oil Co.'s No. 3 Johnson, SW cor. NW SE, Section 15-24-12, a machine in; Kettle and others' No. 1 Morris, SW cor. NW NW, Section 28-24-13, machine in; Skelly Oil Co.'s No. 2 Teter, C NE NW SW, and No. 3 Teter, C SW NW NW, Section 15-23-9, timbers on the ground; Peerless Oil Co.'s (formerly Dresser Oil Co.) No. 8 Hessler, CNL S half NW, Section 23-23-13, spudded in.

In Butler County, the B. F. & G. Oil Co. got a hole full of water in its test on the Swartz farm, NW cor. NE, Section 34-25-6, in sand at 3,190-3,215 feet. It had a small showing of oil at 3,188-90 feet. It had not been abandoned. Tom Miller has a rig up for No. 1, SE cor. Section 33-24-8.

In Lyon County, Swartz and others finished a 40-bbl. well in No. 1 Jones, CSL SE, Section 31-21-12, in sand at 1,936-54 feet, shot with 30 quarts.

In Marion County the Potwin Oil & Gas Co. was drilling below 1,000 feet in No. 1 Maxwell, SW cor. NE SE, Section 31-24-4.

In Sumner County the Waite Phillips Co. had timbers in for No. 1 Pruitt, NE cor. SE, Section 26-33-1e.

Brown & Woodard have a rig up for No. 1 Skelton, SE cor. Section 26-15-2w, Saline County.

The Wilcox Oil & Gas Co. has commenced drilling No. 1 Elder, NW cor. SW NW, Section 23-6-9w, Mitchell County. Stearns and Streater have started drilling operations on No. 1-A Oswald, SE cor. SW SW, Section 8-12-15w, Russell County. Merriam & Findeiss and the Amerada Petroleum Corp.'s No. 1 Milke, SW cor. SE SW, Section 20-12-15w, was abandoned as dry at 3,617 feet.

The Frost Drilling Co. has tools in for a test on the Hull farm, SW cor. NW SE, Section 25-4-16w, Phillips County.

Mogan & Downing have commenced drilling No. 1 Mohr, SE cor. SW, Section 10-18-16w, Rush County.

Bell & Sartain have a rig up for No. 1, farm not named, C NE, Section 35-18-21w, Ness County.

In Cowley County, the Alcorn Oil Co.'s No. 1 Cochonour, NE cor. SE, Section 26-32-3, was drilling below 500 feet. The Roxana Petroleum Co. had started drilling its No. 1 King, C NE NW SE, Section 9-33-3. Waite Phillips Co. and others' No. 6 Wertman, C NE SE NW, Section 20-33-3, made a 750-bbl. well naturally from sand at 3,096-3,124 feet. The same operators had rigs up for the following wells; No. 1 Thurlow, C SE SE SW, Section 17-33-3; No. 1 Patterson, C SE SE NE, Section 18-33-3, and the following in Section 20: No. 7 Wertman, C NW NW NE; No. 8 Wertman, C NE NE NW; No. 9 Wertman, C SW NW NE; No. 10 Wertman, C SE NE NW; No. 2 Baccus, C NE SW NW; No. 5 Glasgow, C NW NW SW; No. 5 Glasgow, C NW NW SW; No. 1 Glasgow, C SE SE SW; No. 2 Glasgow, C NE SE SW; No. 4 Johnson, C NW SW SE; No. 5 Johnson, C SW SW SE; No. 1 Snyder, C SW SW SW; No. 1 Beebe, C NW NW NE.

The Arkansas Fuel Co.'s No. 1 Newman, SE cor. NE, Section 12-32-4, swabbed 40 bbls. a day from sand at 2,564-76 feet, shot with 10 quarts. The Watchorn Oil & Gas Co.'s No. 1, NW cor. NE NE, Section 36-32-4, pumped 65 bbls. of oil and 35 bbls. of water in 12 hours from sand above 3,086 feet. It had been plugged back to that depth after having been drilled to 3,570 feet. J. A. Hull was drilling below 1,300 feet in No. 3 Newman, C NE NW SW, Section 24-32-4, and had a rig up for No. 4 Newman, C NE NW SW, Section 24, and No. 5 Newman, NE cor. SW, Section 24.

The Prairie Oil & Gas Co.'s No. 1 Olson, C NW NW NW, Section 3-35-2, Sumner County, was abandoned as dry at 3,600 feet.

The Tidal Oil Co. completed a failure in No. 1 Ramsey, NE cor. SW, Section 1-33-1w Sumner, which was abandoned at 3,784 feet.

The Theta Oil Co. was drilling below 1,000 feet in No. 1 Pixlee, SW cor. SE, Section 8-22-10. Greenwood County; Connell and others had started drilling No. 1 SE cor. NE NE, Section 12-22-10. Buck and others abandoned at 2,472 feet their test on the Pixlee farm, SW cor. NW NW, Section 10-22-10. Pryor & Lockhart's No. 1 Derbyshire, NW cor. NE SE, Section 13-22-10, had 1,500 feet of oil in the hole from sand at 2,080-2,335 feet and it will be put on the pump.

Murphy and others are drilling below 1,200 feet in a test on NW cor. SW SE, Section 2-23-9, Greenwood County.

KEENER COMPETITION IN SAN FRANCISCO

LOS ANGELES, Cal., Nov. 15.—For several years the San Francisco Bay district has been supplied with gasoline almost exclusively by the service stations of the Standard, Shell, Associated and Union Oil Companies. About the only small marketing company which retained a foothold was the Coalinga-Mohawk Oil Co. At present two other companies are getting ready to enter the San Francisco Bay district, particularly the City of Oakland, on a large scale. These are the General Petroleum Corporation and the Richfield Oil Co., at present engaged in building their distributing facilities.

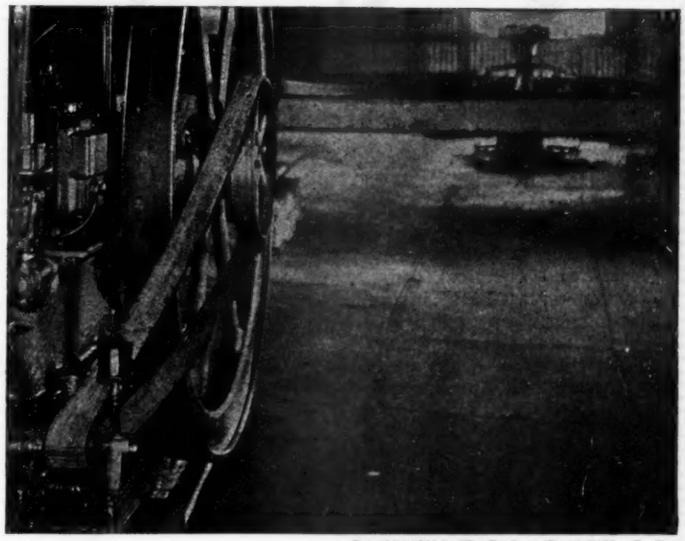
The San Francisco Bay district is a very choice marketing territory known for its clean competition and there is every assurance that the two new companies, while making competition keener, will maintain the high standard of marketing.

LEGAL

TRIBAL OSAGE OIL LEASES AT PUBLIC AUCTION, DECEMBER 18, 1924, BY U. S. GOVERNMENT

December 18, 1924, at Pawhuska, Oklahoma, about 30,000 acres will be offered for oil leases in quarter section tracts. Bids will be for bonus in addition to royalties. 25% payable on day of sale, balance in three annual instalments, with acceptable security. Within advertised area there are about 9,200 oil wells producing from one barrel to two thousand barrels each, the total daily production for September, 1924, being about 100,000 barrels; also there are about 150 wells drilling. All lands are now leased separately for gas. Blue print maps of area advertised, showing tracts producing oil or gas, can be had for fifty cents each, also logs of producing oil or gas wells for twenty-five cents each well. Write U. S. Superintendent, Osage Agency, Pawhuska, Oklahoma, for maps, logs or other information.

GOODYEAR MEANS GOOD WEAR



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INSTITUTE TO ELECT SOME NEW DIRECTORS

(Continued from Page 122)

pires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this subgroup.)
Louis Brown, Oil Well Supply Co., Pittsburgh.
J. M. Wilson, National Supply Co., Pittsburgh.
F. D. Grunder, Jones & Laughlin Steel Co., Pittsburgh.
W. K. Hughes, Continental Supply Co., St. Louis.
M. L. Moore, Frick Reid Supply Co., Pittsburgh.
J. H. McDonald, Atlas Supply Co., Muskogee.
W. M. Patterson, Frick-Lindsay Co., Pittsburgh.
Frank Purnell, Youngstown Sheet & Tube Co., Youngstown.
S. P. Brown, Hughes Tool Co., Houston.
J. L. Considine, Petroleum Iron Works Co., Sharon, Pa.
H. R. Staples, Dunn Manufacturing Co., Oxnard, Cal.
John T. Crotty, Republic Supply Co., Houston.
Harry W. Lees, Draper Manufacturing Co., Cleveland.
John M. Crawford, Parkersburg Rig & Reel Co., Parkersburg.
Anson Mark, Mark Manufacturing Co., Chicago.
R. S. Hazeltine, Guiberson Corp., Dallas.
J. C. Axelson, Axelson Machine Co., Los Angeles.
Phillip S. Graver, The Graver Corp., East Chicago, Ind.
H. M. Haldeman, Pacific Pipe & Supply Co., Los Angeles.
George T. Horton, Chicago Bridge & Iron Works, Chicago.
John H. Moran, International Supply Co., Casper.
Lee J. Black, Beaumont Iron Works Co., Beaumont.
F. J. Bradford, Bradford Rig & Reel Co., Tulsa.
Augustin Davis, Jr., Davis Welding & Manufacturing Co., Cincinnati.
Alfred R. Hughes, Warren City Tank & Boiler Co., Warren, Ohio.
Norman J. Gould, Gould Manufacturing Co., Seneca Falls.
T. L. Lewis, A. M. Byers Co., Pittsburgh.
John McCune, Jr., Bessemer Gas Engine Co., Grove City, Pa.
C. E. Reed, Reed Roller Bit Co., Houston.
John Reid, Joseph Reid Gas Engine Co., Oil City.
Harry M. Runkle, International Derrick & Equipment Co., Columbus.
C. C. Ramsdell, Gilbert & Barker Manufacturing Co., Springfield, Mass.
S. F. Bechtel, S. F. Bowser & Co., Fort Wayne.
B. F. Geyer, Wayne Oil Tank & Pump Co., Fort Wayne.
James B. Graham, National Tube Co., Pittsburgh.
W. B. Gray, Jarecki Mfg. Co., Tulsa.
David S. Faulkner, Union Tool Co., Torrance, Cal.
Fred M. Everett, Columbian Rope Co., Auburn, N. Y.
John Primrose, Power Specialty Co., New York.
A. F. Walker, Republic Iron & Steel Co., Youngstown, Ohio.

Natural Gas Group

Entitled to one representative on the board of directors. A vacancy exists on account of the death of E. P. Whitcomb. One nomination to be made at next annual meeting to fill unexpired term, ending in 1925.

Councillors

(Nominating committee for this subgroup.)
J. D. Creveling, H. L. Doherty & Co., New York.
John B. Tonkin, Peoples Natural Gas Co., Pittsburgh.
Raymond Cross, United Natural Gas Co., Oil City.
T. B. Gregory, Manufacturers Light & Heat Co., Pittsburgh.
John B. Corrin, Hope Natural Gas Co., Pittsburgh.
L. B. Denning, Ohio Fuel Supply Co., Pittsburgh.
M. B. Daly, East Ohio Gas Co., Cleveland.
N. C. McGowen, Louisiana Gas Co., Shreveport.
Union Natural Gas Co., Pittsburgh.
R. W. Gallagher, East Ohio Gas Co., Cleveland.
K. C. Krick, Logan Gas Co., Columbus.
A. B. Macbeth, Southern California Gas Co., Los Angeles.
T. W. Phillips, T. W. Phillips Gas & Oil Co., Butler, Pa.
A. W. Leonard, Oklahoma Natural Gas Co., Tulsa.
William B. Way, Natural Gas Association of America, Pittsburgh.
M. W. Bahan, The Texas Co., Fort Worth.
Harold J. Barneson, General Petroleum Corp., Los Angeles.
Frank L. Chase, Lone Star Gas Co., Dallas.
R. M. McFarlin, McMan Oil & Gas Co., Tulsa.
Hollis P. Porter, Gypsy Oil Co., Tulsa.
J. E. McMahon, Los Angeles.
J. R. Munce, Arkansas Natural Gas Co., Pittsburgh.
P. F. O'Brien, Haynesville Gas Co., Shreveport.
Charles Owen, Owen-Osage Oil & Gas Co., Caney, Kans.

Natural Gasoline (Casinghead) Group

No nomination to be made at next annual meeting.

Councillors

(Nominating committee for this group)
Roger Chew, Standard Oil Co. of New Jersey, New York.
John M. Sands, Phillips Petroleum Corp., Bartlesville.
S. G. Sanderson, Gypsy Oil Co., Tulsa.
J. A. Rafferty, Carbidge & Carbon Chemical Corp., New York.
Kenyon L. Reynolds, Pacific Gasoline Co., Los Angeles.
S. J. Dickey, General Petroleum Corp., Los Angeles.
R. A. Crawford, Lone Star Gas Co., Dallas.
T. F. O'Brien, The Texas Co., Fort Worth.
D. E. Buchanan, Chestnut & Smith Corp., Tulsa.
A. V. Bourque, Association Natural Gasoline Manufacturers, Tulsa.
H. B. Bernard, Sinclair Oil & Gas Co., Tulsa.
H. C. Cooper, Hope Natural Gas Co., Pittsburgh.

Foreign Trade Group

The term of office of W. C. Teagle expires in 1924. One nomination to be made at next annual meeting.

Councillors

(Nominating committee for this group.)
J. A. Moffett, Standard Oil Co. of New Jersey, New York.
W. L. Stewart, Union Oil Co. of California, Los Angeles.
C. E. Herman, The Texas Co., New York.
Howard E. Cole, Standard Oil Co. of New York, New York.
Earl Oliver, Marland Oil Co., Ponca City.
J. R. Simpson, Sinclair Consolidated Oil Corp., New York.
C. O. Stillman, Imperial Oil, Ltd., Toronto, Canada.
W. D. Anderson, Atlantic Refining Co., Philadelphia.
H. M. Storey, Standard Oil Co. of California, San Francisco.
C. P. Whaley, Vacuum Oil Co., New York.
Harry D. Frueaff, Henry L. Doherty & Co., New York.
Axtell J. Byles, Tide Water Oil Co., New York.
F. S. Heath, Pure Oil Co., Columbus.
F. Douglas Cochrane, New England Oil Refining Co., Boston.
J. M. Danziger, Pan-American Petroleum & Transport Co., New York.
R. C. Warner, Standard Oil Co., of California, San Francisco.
Albert Hill, Atlantic Lobos Oil Co., Philadelphia.
D. M. Folsom, General Petroleum Corp., San Francisco.
W. L. Mellon, Gulf Oil Corp., Pittsburgh.
J. C. Van Eck, Shell Co. of California, New York.

"At Large" Group

The terms of office of John Barneson, F. B. Henderson, Julius Germany and C. D. Chamberlin expire in 1924. Four nominations to be made at next annual meeting. These four nominations to be made by all of the councillors acting as a Committee of the Whole.

YIELD OF WILDCAT LANDS PROBLEMATICAL

(Continued from Page 24)

ever, because they don't know and they don't pretend to know—if the result of interviewing a lot of big individual producers and oil executives in Oklahoma within the past week can be taken as an index of the state of mind of the industry generally. Every acre they possess is held by oil operators on the assumption that it may be productive, but the result of wildcatting in the past 65 years has shown that most of the newly tested wildcat leases do not contain oil.

The producing acreage of every well conducted oil company is only a small part of its total acreage. There are several Mid-Continent oil companies that are each paying rentals on over a million acres. It would be safe to say that the combined undeveloped leases of the 10 leading Mid-Continent companies would exceed a half billion acres, most of which may never produce a barrel of oil or a thousand cubic feet of natural gas. Almost every large company in the Mid-Continent has undeveloped leases in nearly every part of the State or States in which it operates. Some of this wildcat acreage is held in blocks, but most of it is in "checkerboarded" or scattered small parcels. The companies buy it to protect themselves, and most of it when it is cheap. Out of the whole tremendous mass of acreage a little of it may some day be of real proven value. The difficulty with the oil company is that it does not know what is good and what is not good until it has been drilled. One Oklahoma oil company drilled test wells on 178 leases of its unproven leases, all of them inside the so-called oil regions of Oklahoma and found that only 17 of the leases were oil producing, or less than one out of 10. This company does not drill on geological advice as a rule, but another company, which has one of the best geological departments in the country tested 30 leases, all of them favorable from the geologists' standpoint, and out of the 30 found that only two were productive of oil.

The Federal Trade Commission has put the oil industry to a lot of bother and expense in propounding its questions

Here is Greater Power and More Rugged Strength

The Genuine Williams "Vulcan" Break-out Wrench, known to a great host of drillers as "Maud," provides exclusive features and advantages. No other tongs approach it in general efficiency, durability and economy.

Why trust to a less trusty tool?

Literature?

J. H. WILLIAMS & CO.
"The Wrench People"
New York BUFFALO Chicago

Note the construction of this rugged, powerful tool:—

Short, sturdy handle.

Jaws fastened with through-bolt—can't spread.

Chain proof-tested to 2/3 of catalog strength.

Suspension Clamp and Tackle Eye of ample size

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SUPERIOR DROP-FORGED TOOLS
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CAPPING and SOCKET STEEL TOOL-JOINT STEEL

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SPECIAL ALLOY STEEL **FORGING-BILLETS** QUALITY and SERVICE

Manufactured By

ANDREWS STEEL CO.

NEWPORT, KY.

Look at the Jaws

Steel Handle
Eight sizes
6 to 48 ins.
Wood Handle
6, 8, 10, 14 in.
sizes.

—before you buy a pipe wrench. Can you replace them when dulled? If not, it isn't a Trimo and its period of usefulness is limited.

The insert jaw in handle, as well as all other parts of the TRIMO Pipe Wrench, are readily replaceable at a fraction of the cost of a new wrench.

Your dealer carries the TRIMO and a full stock of parts.

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it will be interesting to study the results when all returns are in and combined into a little table that can be printed in a trade magazine in a few inches of space, but it wont be worth much.

The wildcatter, corporate or individual will continue to make ducks and drakes of all the estimates that are put forward; will condemn "good looking territory" with dry holes innumerable and open the Powells and Cushings of the future in perhaps unfavorable looking regions. He may only get one bullseye in 10 shots, but the bullseyes he has got so far have resulted in about 7,500,000,000 bbls. of a very essential product.

How long he can keep the good work going is unanswerable.

GULF COAST

(Continued from Page 34)

ing 75 bbls. at 1,600 feet and the Gulf Production Co. has a pumper in No. 24 Smith at 1,600 feet. The Humble Oil & Refining Co.'s No. 5 Jones, in the bay, is bailing at 2,760 feet, as is No. 1 Tabb, on the mainland, at 2,100 feet.

Fort Bend County

At Big Creek, the Gulf Production-Snowden & McSweeney's No. 9 Davis is pumping 50 bbls. after being deepened to 2,900 feet.

In the Blue Ridge Pool, The Texas Co.'s No. 12 Robinson is pumping 250 bbls. after working over at 3,780 feet.

South Louisiana

In the Edgerly Pool (Louisiana) G. W. Gray's No. 13 Lilliard is flowing 100 bbls. of fluid, 50 per cent oil, at 2,325 feet. The Green Oil Co. is deepening No. 6 Moore there.

In the Vinton (Louisiana) Pool, the Gulf Refining Co.'s No. 33 Star is a salt water hole at 2,300 feet and will be drilled deeper. The Vinton Petroleum Co. got the same in No. 13 Vincent at 2,760 feet and will also be deepened. The Texas Co.'s No. 26 Gray staged a blowout at 910 feet.

J. Dannebaum is rigging No. 1 La Blanc in St. Mary's Parish. The Yount-Lee Oil Co. is drilling at Hackberry Island in Cameron Parish. The same company is also drilling No. 1 Ervine in Jeff Davis Parish. The Texas Co. has sold the fee to some 30,000 or more acres in Cameron Parish to Orange parties, but retained the mineral rights for a period of 10 years. Unless oil or gas is developed in that time the rights revert to the buyers of the surface fee.

Southwest Fields

The United North & South Oil Co.'s No. 6 Branyon, one-half mile northeast of production on the Caldwell County side of the Luling Field, is a 150-bbl. well at 2,210 feet. The sands are at 2,150 feet in the old field. The well offsets the Beauchamps Oil Co.'s No. 2 Fields. The Beaver Oil Co.'s No. 1 Tiller is making 150 bbls. and the same company's No. 1 in the San Marcos River bed is good for 250 bbls. It is between the Baker lease of the United North & South Oil Co. on the Guadalupe County side of the stream and the same company's Maggie Moore on the Caldwell County side.

The runs of the Magnolia Petroleum Co. from the Luling Field during October were 380,081.38 bbls., as compared with 325,799 bbls. during September. In addition the Atlantic Oil Producing Co. shipped 454,183 bbls. during October, routing the oil tank cars to the docks of the United Central Oil Co. at Pasadena, on the Houston ship channel, and thence in tankers to the Philadelphia plant of the Atlantic Refining Co.

Laredo Districts

The runs of the Magnolia Company from the Laredo pools during October were 35,266 bbls., against 34,170 bbls. during Setember. In the Wolcott Pool, the Magnolia Co.'s No. 13 is a 75-bbl. well, with No. 14 Drilling. The Olsan Oil Co. has a 75-bbl. well in No. 5. In Bruni district in the eastern part of Webb County, the Cole Petroleum Co.'s No. 5 set casing at 1,685 feet and No. 6, located 300 feet southeast, is drilling and will test a sand at 2,150 feet.

In Jim Hogg County, Henne, Wench & Farris' No. 4 Martinez has spudded in, 300 feet north of No. 3, the flowing well, which has been producing for 14 days. O. W. Wililams is drilling No. 1, located 1,700 feet north of the big well. He purchased a lease on 40 acres, Block 2, Survey 46, for $40,000. The Shasta Oil Co. (formerly Forest-Miracle Oil Co.) No. 1 Holbein ranch, 1½ miles east of production, is waiting on casing at 2,344 feet. Long and other's No. 1 Vale, formerly Boston-Mirando Oil Co. is drilling on Survey No. 583.

In the Orange Pool the Mutual Oil Co. cleared No. 7 Chesson, which had sanded and it is flowing 2,000 bbls. at 4,225 feet. The Gulf Co.'s No. 12 Smith, a workover, in the Goose Creek Pool, is a 40-bbl. pumper. Hamm & Co.'s No. 1 Bryan, at Damon Mound, bailed dry at 1,375 feet and will be deepened. It is an old hole drilled originally during the early days of the pool by the Atkinson Oil Co.

NORTH TEXAS MARKET GASOLINES STRONGER

FORT WORTH, Tex., Nov. 15.—Depletion of the supply of natural gasolines and 64-66 375 end point export grade gasoline was the cause for a general strengthening in the gasoline list which carried most prices ¼-cent higher. Practically all of the export material was taken up early in the week and the movement then took in the 60-62 gravity and made itself felt in the demand for U. S. Motor gasoline. The demand for natural gasolines was particularly strong in view of the use of this material in the export gasoline as well as a generally strong demand from domestic users. The demand for Grade A material was transferred to Grade C material later in the week. Naphthas and 56-58 gravity gasoline were also affected by the generally stronger tone in all motor fuels.

Railroad buying which is generally active just before the first of the month has become evident and a stronger demand has made $1 the bottom price for the 24-26 grade. Gas oil aided slightly by the strength in fuel oil but generally showed little change in price. Kerosene was weak without much change in price, although one sale as low as 4¼ cents was reported earlier in the week, the price strengthening to 4⅜ cents later.

Straw distillate of 38-40 gravity was still weak, with a good supply and a small movement, the price being generally quoted at 3½ cents. Blends were holding strong at 7¾-8 cents due to the excellent demand for the motor fuels of all grades and the scarcity of natural gasolines.

COASTAL QUOTATIONS CONTINUE UNCHANGED

HOUSTON, Tex., Nov. 17.—Prices on pale oil and red oils are unchanged, following an advance of 1 cent per gallon announced on Thursday of last week, but fuel oil is quoted $1.60 to $1.70, due to the advance of 25 cents on crude on November 6. A new price list is being mailed out by the Galena-Signal Oil Co. of Texas, refiners and marketers of pale filtered stocks. No. 2 color, 150 viscosity is quoted at 20½ cents. No. 2 color plus, 200 viscosity at 22 cents and No. 2½ color minus, 300 viscosity at 25½ cents. No. 2½ color, 500 viscosity is listed at 29½ cents and No. 2½ color, plus, 750 viscosity at 39½ cents.

Quotations on gas oil are unchanged at 4½ to 5 cents. It is said the United Central Oil Corp., formerly the White Oil Corp., is arranging to resume work at the refinery at Pasadena on the Houston ship channel, which has been shut down for about one year. It is a lubricating plant with a capacity of 2,000 bbls. per day.

E. W. Marland, president of the Marland Oil & Refining Co., has been inspecting the company's terminals at Texas City. It was announced that additional storage capacity for 500,000 bbls. will be erected. Two steel tanks of 80,000 bbls. each are now being erected and six more will be constructed at once. The company handles both refined and crude from Texas City, shipping in tank steamers to coastwise points and for export. The company also has a barrel plant there.

REFINED SITUATION BETTER IN OIL CITY

OIL CITY, Pa., Nov. 15.—The refined oil situation in northwestern Pennsylvania again improved to a considerable extent during the past week. Practically all of the list is stronger and some products which have not shown any action for a considerable length of time are now beginning to take on real life. The underlying reason for this improved condition seems to be the expectancy on the part of almost everyone of an early advance in the Pennsylvania crude oil market. The producers of Pennsylvania oil are holding their production for higher prices and the amount which is daily being produced but not offered for sale is now so large that the pipe line companies storage tanks are practically filled.

Gasolines are very strong especially in price. Demand seems to be off a little compared with what it was a week ago and yet it is abnormally large for this time of the year.

Kerosene is holding its own, according to the belief of the most of those who have watched the situation although there are some who claim it is a little firmer. However, the offerings of kerosene in the local district seem to be plenty large enough.

Fuel oil is stronger in both demand and price.

Cylinder stocks are considerably stronger in both demand and price. Some of the larger concerns of the East are reported to be in the market for Pennsylvania cylinder stocks and buying good sized quantities. Neutrals are stronger, the action in the case of these being the first in a long time and being one of the most encouraging features of the past week's refined oil market.

Wax continues to be very strong and scarce in northwestern Pennsylvania.

ALLAN HUTCHINSON DIES

CHATHAM, Ont., Nov. 15.—Allan Gilmor Hutchinson, for 35 years a trusted and valued employe of the Fairbank oil interests at Oil Springs, Ont., died recently. Since 1887 he had been continuously identified with the oil business.

LOUISIANA GASOLINE UP

SHREVEPORT, La., Nov. 15.—The Gulf Refining Co. has advanced the price of gasoline from 15½ to 16½ cents.

PIPE FOR SALE

We offer the following Used Gas Line Pipe for Sale:

31	miles	3″	32	miles	10″
15	miles	6″	7	miles	12″
10	miles	8″	5	miles	14″

Write us for Prices

BAUR GAS CO.
Eaton, Indiana

WRIGHT

IMPROVED HIGH SPEED HOIST

Here is a stronger hoist, a speedier hoist, an easier running hoist, a hoist with a much longer life, and a hoist with a greater factor of safety.

In fact, the **Wright Improved High Speed Hoist** can best meet all oil field requirements, for the simple reason that it possesses improvements found on no other hoists.

Look them over and you will readily see why the Wright is superior.

BALL BEARING STEEL DRIVING PINION

SPECIALLY DESIGNED CHAIN

SUPPLEMENTARY STEEL SAFETY ARM

SPECIAL OILING SYSTEM

Ask for literature on our many styles and strengths.

BALL BEARING SWIVEL HOOK

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SHEFFIELD
SUPER-STEEL
PULL RODS

Delays from pull rod troubles are costly.

Exacting conditions demand pull rod strength. Oil field men need pull rods that will perform day in and day out, 365 days in the year.

Here is the outstanding qualification of the Sheffield Steel Pull Rod:

Proved Strength

These pull rods are made of special analysis steel. They have been used under every sort of working condition. They will not break. They stand the most severe strains. This pull rod head will not pull off.

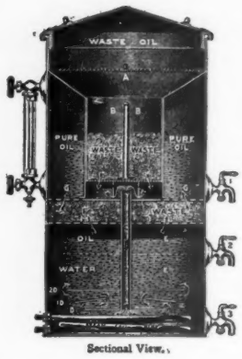
No better pull rod has ever been made—that is the verdict of every user.

Make sure that the trade-mark "K" is on the head of every pull rod you use. Specify Sheffield Super-Steel Pull Rods in buying. If your supply house does not carry them, write us direct.

THE KANSAS CITY BOLT & NUT COMPANY

SHEFFIELD STEEL MILLS

Sheffield Station, Kansas City, Mo.



Sectional View.

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Standard Oil has more than 400 Burts in Service

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One-half to nine-tenths of the oil used to lubricate your equipment is never consumed in use. It drips past the bearings and is lost—a most expensive and absolutely needless waste. The

CROSS OIL FILTER

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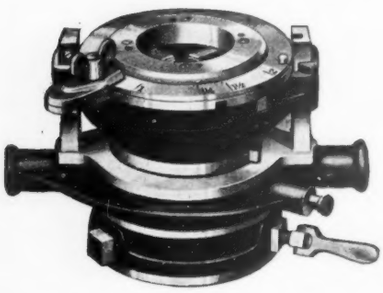
has been serving industry for over 25 years by making this waste oil available for use over and over again. Removing all grit, dirt and other impurities, the Cross Filter makes the oil the same as new—fit for the finest machinery.

The Cross works 15 to 20 years without repairs. Pays for itself several times over each year.

If you are not getting the advantages of a Burt Mfg. Co. Filter now, by all means get in touch with us at once.

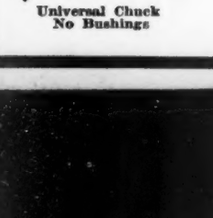
THE BURT MANUFACTURING COMPANY
Pioneer Oil Filter Manufacturers
929 S. High St., Akron, Ohio



No. 26 Beaver Ratchet
1, 1¼, 1½ and 2-in.
Adjustable

Wherever Oil Flows Through Pipe

Set the dial and it's ready.


Universal Chuck No Bushings

No. 26 Beaver Ratchet is the most widely used 1 to 2 inch die stock in the oil fields. It is built to stand punishment and to overcome the fuss and bother of tools using loose parts. You'll find No. 26 bearing the brunt of the burden wherever oil flows through pipe.

No. 26 is self-contained and adjustable. It threads 1, 1¼, 1½ and 2 inch pipe without changing dies or bushings. Simply set the dial to size and it's ready. The Universal chuck instantly centers the pipe—no loose bushings.

Narrow receding dies make 2 inch threading easy with one hand.

Buy it through your jobber. Write us for the Beaver catalog—18 Beavers ⅛ to 12 inches.

THE BORDEN COMPANY
514 Dana Ave., Warren, Ohio

MEXICAN FIELDS

(Continued from Page 56)

tation. As reported, the drill tapped a gas stratum that showed some light gravity oil, at 3,735 feet in a hard sandy shale, with basaltic breaks apparently. The test was shut down for orders at the time, and as the gas was considerable the rumorists went into action. The company is now testing gas pressures, etc., and it will probably clean the hole out of mud and cavings, carry casing to the bottom and drill ahead to see if the formation will not change and if so what will develop. Huasteca's No. 47 Cerro Azul is complete at a sub-sea level of 1,617 feet, a failure.

South Fields

Mexican Eagle Oil Co., Ltd., in the south fields, has more strings making hole, or preparing to make hole, than it has had for a year. The company is again venturing way south of the Tuxpam River, not far from Palma Sola, where its ventures were failures. It is rigging up now for a test known as No. 2 Mecapepec. It is also going back into its No. 23 Alazan, which was indefinitely suspended over a year ago at 2,012 feet, the drill stopping in a shell. It is also back again in the Chinampa sector, trying for a "high spot" in its holdings in Lot 161, rigging standard for No. 6 there. Yet another new test feeling around for a "high" is No. 43, Lot 260 Amatlan, the lot that made petroleum history in the company's famous Los Naranjos Pool. No. 43 is drilling at a nominal depth in gravel and boulders. Its routine operations follow: No. 10, Lot 148 Amatlan, will have to set a liner at 2,210 feet, where the drill is in gray lime; No. 41, Lot 120 Amatlan, cemented 8-inch at 1,760 feet in shale; No. 19 Cerro Veijo drilling in shale and shell at 1,836 feet, carrying 6-inch; No. 7 San Diego drilling in lime at 1,782 feet, carrying 6-inch.

Huasteca Petroleum Co. (Mexican Petroleum) is drilling on three tests in Cerro Azul and preparing to drill seven more. Its No. 48 is drilling in hard shale at 1,775 feet; No. 49, drilling in brown shale at 803 feet and No. 51, drilling in gray shale at 665 feet. Down in Tierra Blanca its No. 28 is drilling in brown shale at 1,795 feet; No. 30, drilling in gray lime at 2,122 feet and No. 32, drilling in gray and brown lime at 2,135 feet. Up in Granadilla, its No. 1 is drilling in sandy blue shale at 65 feet. Agwi Companies (Atlantic Gulf Oil Corp.), No. 23, Lot 2 Chiconcillo, is rigging standard at 2,110 feet in limestone, and No. 24, same, cemented 6-inch in the San Felipe at 2,060 feet. Hudson and others, No. 1, Lot 5 Metlaltoyuca, is drilling in shale at 575 feet. Penn Mex Fuel Co.'s No. 9-A Jardin cemented 10-inch at 2,167 feet in blue shale with traces of shell; and No. 14, same, is rigging rotary. Cortez Oil Corp. is fishing for collapsed casing in No. 8 Aguada at 4,948 feet.

Cacalilao

In the Cacalilao sector of the northern fields drilling operations follow: La Corona Petroleum Co., in Lot 4—No. 140, drilling in limestone at 2,045 feet; No. 141, in brown and white lime at 2,000 feet; No. 144, cemented 10-inch in shale at 585 feet; and four tests are rigging. International Petroleum Co.'s operations in Lot 5—No. 35, cemented 8-inch in the San Felipe at 1,200 feet; No. 76, drilling in gray lime at 1,915 feet; Nos. 121 and 122, cemented 8-inch in the San Felipe at 1,210 and 1,190 feet, respectively. No. 102, fishing at 2,165 feet; No. 104, in gray shale at 415 feet; No. 107, cemented 10-inch in the San Felipe at 1,235 feet. In Lot 3, Nos. 54 and 126 cemented 8-inch in a shell at 1,040 and 1,050 feet, respectively, and No. 72 is spudding; and in Lot 4, No. 113, is drilling in gray lime at 1,690 feet. Mexican Gulf Oil Co.'s No. 24, Lot 1, is drilling in the San Felipe at 1,380 feet, and No. 68, same, drilling in brown limestone at 1,880 feet.

Mexican Sinclair Petroleum Corp.'s No. 62, Lot 3, is drilling in the San Felipe at 1,190 feet. Mexican Petroleum Co.'s No. 19, Lot 1, cemented 10-inch in limestone at 823 feet. Transcontinental Petroleum Co.'s operations in Lot 4 follow: No. 92, drilling in limestone at 2,000 feet; No. 107, running 8-inch in the San Felipe at 1,300 feet. In Lot 5, No. 127 drilling in lime with the hole full of oil at 1,925 feet; No. 129, drilling in lime at 1,620 feet; No. 133, cemented 10-inch in the San Felipe at 1,250 feet; No. 134, in shale at 560 feet; and No. 132, Lot 2, in shale at 550 feet. Five strings are rigging. In the Paciencia, just north of Cacalilao, No. 14 is drilling in alluvium at 75 feet.

Old Panuco

In the older sectors of the Panuco Field drilling operations are as follows: Mallory and others' No. 1 Vega de Otata, drilling in shale at around 485 feet. The Texas Co.'s No. 8 Cicero, drilling up low iron at 1,711 feet; Panuco Boston Oil Co.'s No. 3, Lot 15, Lomas y Llanos, is drilling in shale at 315 feet. Sol Oil Co., (Federal zone) No. 1 Alamo, drilling around 625 feet in shale; Credito Petroleum Co.'s No. 1, Lot 13, Lomas y Llanos, drilling in the San Felipe at 1,600 feet; and No. 1, Lot 11, Tamante, drilling in lime at the same depth.

Ebano

In the Ebano Field, Mexican Petroleum Co.'s operations follow: No. 28 Chijol, cemented 8-inch in lime at 1,200 feet; No. 44-A La Dicha, drilling in shale at 375 feet; No. 48, drilling in limestone at 2,460 feet; No. 49, in shale at 225 feet; No. 50, in shale and shell at 1,375 feet. At Tancasneque, north of the Tamesi River, the drill is in limestone at 2,870 feet. In its Chapacao sector operations are as follows: No. 1, drilling in lime at 1,770 feet; No. 2 in the Tamasopa, at 2,315 feet; No. 3, waiting for cement to set around 8-inch at 1,245 feet, and No. 5 cemented 8-inch at 1,245 feet in lime with shale streaks.

National Lines, drilling on its right of way in this Chapacao sector, has its 8-inch cemented on No. 1 at 1,201 feet in gray lime, and cemented 10-inch on No. 2 at 750 feet in hard shale.

Miscellaneous Tests

In Los Esteros, American International Fuel Co.'s No. 15 is drilling in white lime and shale at 2,620 feet; and No. 16 is rigging standard.

In the Topila district, Cortez Oil Corp.'s No. 1 Cuyuayotes, south of Topila proper, is drilling in gray shale at 1,385 feet. East Coast Oil Co.'s No. 9, Lot 29 Tamboyoche, drilling in hard gray shale at 1,365 feet. Mexican Fuel Co.'s No. 14 Santa Fe is drilling in gray lime and gassing at 2,250 feet; and No. 15 there has cemented 8-inch in gray lime at 1,650 feet. National Lines, drilling on the Federal zone in the Paciencia de Aguacate sector, No. 14 is around 1,275 feet in shale.

In the Marland Field, Cia. Petroleum Franco Espanola No. 18 Limon is drilling in hard lime at 1,885 feet.

At El Naranjo, northwest of Ebano, International Petroleum Co. had some gas and oil showings at less than 1,000 feet. The drill is now 1,350 feet in shale after passing through a stratum of lime. It is possibly the San Felipe formation. This showing in a test so well removed from other operations is causing some comment.

Mexican Gulf Oil Co.'s No. 23 El Barco is drilling at 825 feet in shale; and has derricks up for Nos. 25 and 61. This also applies to Nos. 2 and 3 in Lots C Corcovado.

At Punta Arena, on the Panuco River, Gilliam and others, No. 2 is fishing for a fish tail bit at 1,700 feet.

At Corcovado, Power and others' No. 1 Garruch should be the next test completed there as the drill is now around 1,700 feet in gray lime. Intermex Oil Co. has derricks up for Nos. 1 and 5, Lot 4 there.

There is nothing new to report on the Tortuga tests as they continue shut down.

Bandits Again

Bandits raided a Cacalilao camp of the International Petroleum Co. recently, killing the nightwatchman and tapping the camp safe for 11,000 pesos. Some personal effects of the camp staff were also taken. Thus far the band, which is alleged to number 10 men, has not been apprehended.

NORRIS

Clutch Type
STANDING VALVE PULLER

It's There

When You Need It

Not only is the Norris Clutch Type Standing Valve Puller there in the sense of mechanical perfection but it is also always right there on the job, deep down in the well, whenever you want to pull the standing valve.

One-half of the Norris Clutch attaches to the working valve in place of the ordinary valve bottom; the other half screws into the crown of the standing valve. These parts do not interfere in any way with the normal operation of the valves—you simply forget all about them until you want to pull the standing valve.

When this becomes necessary, you merely lower the rods and give them a few turns to engage the clutch parts of the Norris Valve Puller. The lower valve comes up with the Rods the first time and every time. A complete run, in and out, is saved.

Saves Time and Money

Thus the Norris Clutch Type Valve Puller saves a run of the rods every time a valve is pulled. And when the cost of running the rods is considered, it is readily seen that the clutch actually pays for itself every time it is used. In addition to this pulling service, the Norris has a large, solid valve bumping space which alone would make it a profitable investment.

If you purchase a Norris Clutch Type Valve Puller you pay for it once and only once, but, if you try to get along without it, you pay for it in labor charges and wasted time every time you pull a valve.

Be fair to your pocketbook and order a Norris for every well.

At your supply house or direct.

Manufactured by

NORRIS BROS., Inc.
Manufacturers of Oil Well Pumping Equipment
ROBINSON ILL.

NORRIS

Richest Argentine Oil Territory Held By the Government

In a report to the United States Department of Commerce, Consul General Henry H. Morgan at Buenos Aires says:

The year 1923 started out with optimistic prospects for oil production in Argentina, both on the part of the Government and of private companies, but toward the latter part of the year two of the largest private companies had withdrawn their operating forces, while others had curtailed their operations to a great extent. However, this was not true of the government fields, these producing in greater quantities, so much so that plans were formulated to increase the facilities for handling the crude oil. The national reserve is dotted over with good wells, the number of which is already beyond the 200 mark, and a remarkably low percentage of dry holes has resulted from the exploitation.

At a rough estimate, 15 private companies have spent over $70,000,000, Argentine paper—equal at par of exchange to $29,722,000, American currency—in the drilling of the 149 wells, and only two of the companies are getting oil in commercial quantities. The following statement gives the actual number of wells completed by various companies up to the end of 1923:

Compania de Challaco	3
Astra Co.	36
Standard Oil Co. of Argentina	9
Standard Oil Co. of California	2
Dodero Syndicate	1
Argentine Oilfields (Ltd.)	3
Compania Titan	1
Compania Ferrocarrilera	54
Compania de Petroleo de Comodoro Rivadavia	3
Compania Industrial y Comercial (Anglo-Persian	15
Diadema Argentina	8
Solano Oil Co.	1
Omnium Oil Co.	1
Sindicato Kinkelin (Stinnes)	8
Eastern Petroleum and Finance Co.	6

The Sindicato Kinkelin (Stinnes) states that it has spent up to the present time $6,000,000, Argentine paper—equal at par to $2,547,000, American currency—in the southern oil field and has not secured a single barrel of oil.

The principal reason for the complete withdrawal of two of the large companies was the remission to the Argentine Congress by the Argentine Ministry of Agriculture of a proposed bill under which companies including foreign governments among their stockholders could not, under any circumstances whatsoever, participate in the exploitation of Argentine oil. The Anglo-Persian, under the direct control of the British Government, found its position untenable, and, because of close relationship, the Royal Dutch-Shell interests were affected. It is felt that the two companies will return to the Argentine as soon as they can settle the question of the foreign government stockholder difficulty.

The Government has made plans for extensive exploitations. Among these plans are the building of a 2,000-tons-a-day refinery at La Plata, Province of Buenos Aires, the enlargement of the present small refinery at Plaza Huincul, Territory of Neuquen; a 10,000-ton storage tank and various smaller ones in Plaza Huincul; a pipe line of 60 kilometers (37.20 miles) from La Plata to the city of Buenos Aires; construction of 10,000-ton storage plant for petroleum in Bahia Blanca, Province of Buenos Aires, also one of 600 tons for naphtha and kerosene; one of 8,000 tons at Cencepcion del Uruguay, Province of Eentre Rios; and one of 8,000 tons in Mar del Plata, Province of Buenos Aires, and the purchase of more oil-carrying steamers.

It is true that in the Government reserve the richest oil territory is located, being at Comodoro Rivadavia, Territory of Chubut, lying on or close to the coast and tailing off to a point as it runs inland. Practically all of this land is included in the Government reservation. Geologists, however, still believe that further rich deposits will be found in the district and are convinced that the field has a future for private exploitation.

One of the greatest needs in Argentina is to do away with obsolete laws bearing

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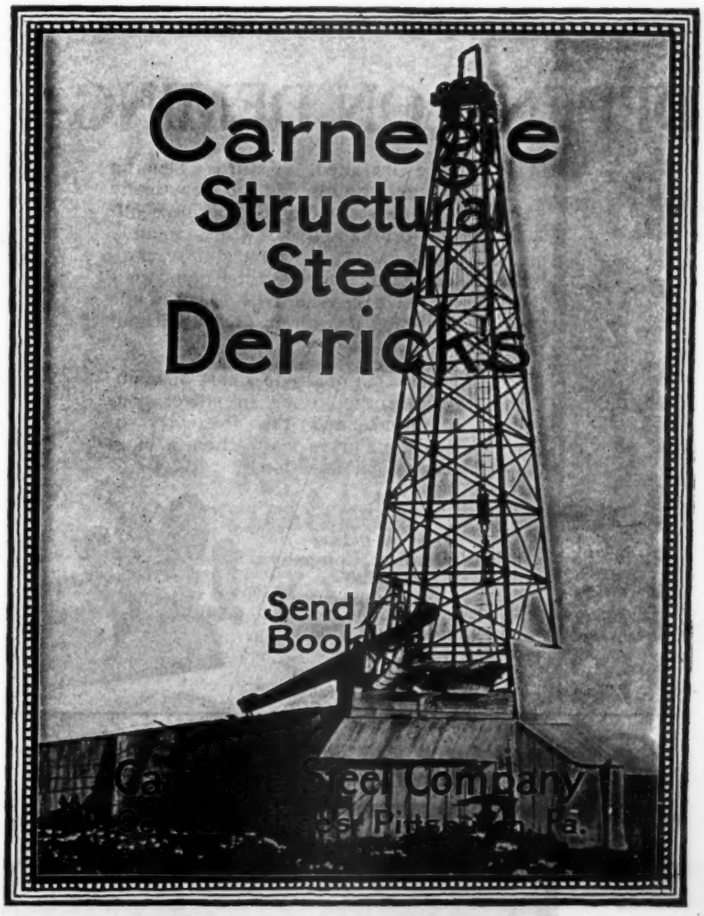

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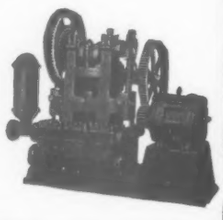

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on the petroleum industry and replacing them with legislation that will clarify the situation so that not only Argentine companies endeavoring development will know where they stand, but as an inducement for foreign capital to enter the country and assist in the search for oil. The cost of bringing in geologists and engineers for preliminary surveys is considerable in itself, and a concern that comes in making a considerable expenditure on both should be assured of no complications in the event that they make the effort and find production.

GASOLINE PRODUCTION DURING THE YEAR 1924

(Continued from Page 32)

months of 1924, the figures for the entire year would be as follows:

Stock Jan. 1, 1924	1,075,000,000
Imports	128,000,000
Production	8,743,000,000
Total	**9,946,000,000**
Exports	1,224,000,000
Consumption	7,603,000,000
Stock Dec. 31, 1924	1,119,000,000
Total	**9,946,000,000**

Adding the production and imports and subtracting from the total the sum of the consumption and exports leaves 44,000,000 gallons as the amount by which it is estimated that the stock of gasoline will be increased during the year 1924. According to these estimates, the production of gasoline during 1924 plus the imports exceeds the consumption plus exports by about one-half of one per cent.

If the production for 1924 comes close to the estimate, 8,743,000,000 gallons, or an average of about 24,000,000 gallons a day, the estimated amount added to stock —44,000,000 gallons—will be equal to only about two days' production.

Marvelous Result

Taking into consideration the fact that the gasoline of the United States is made at several hundred refineries among the greater number of which there is absolutely no cooperation but instead very keen competition, it is marvelous that when all of the gasoline from these hundreds of refineries is added together it is found that the total amount, plus our imports, exceeds our consumption and exports by only a few per cent.

The following tabulation shows clearly how the refineries, cracking plants and natural gasoline plants have taken care of the users of gasoline.

Year	Production Plus Imports	Consumption Plus Exports	Added to Stock
1918	3,583,000,000	3,698,000,000	*115,000,000
1919	3,966,000,000	3,817,000,000	149,000,000
1920	4,923,000,000	4,907,000,000	16,000,000
1921	5,191,000,000	5,068,000,000	123,000,000
1922	6,264,000,000	5,967,000,000	297,000,000
1923	7,747,000,000	7,556,000,000	191,000,000

*Withdrawn from stock.

During 1922 we added to our gasoline stocks at a rate averaging over 800,000 gallons a day—during 1923 at a rate averaging 520,000 gallons a day—and during 1924 the rate will probably be around 120,000 gallons a day.

It is a rather interesting fact that during 1922, when there was no thought of an overproduction of crude, we added 297,000,000 gallons to our gasoline stocks —that during the flood of crude in 1923 we added only 191,000,000 gallons—and that in 1924 the percentage of increase will be entirely negligible.

If 1924 closes with a stock of around a billion gallons of gasoline, and around four hundred million barrels of crude oil, the burden will be rather heavy—especially to start a new year with.

Whether the carrying of large stocks of crude oil and large stocks of gasoline is to become the established policy of the industry only the future can reveal—the surest thing is the increase, year by year, in the demand for gasoline.

TEXAS BUSINESS PERMITS

AUSTIN, Tex., Nov. 15.—Chartered: The New Boston Oil & Gas Co., New Boston, Texas, capital stock $100,000; incorporators James Hubbard, George B. McCullough, F. H. Gassolo.

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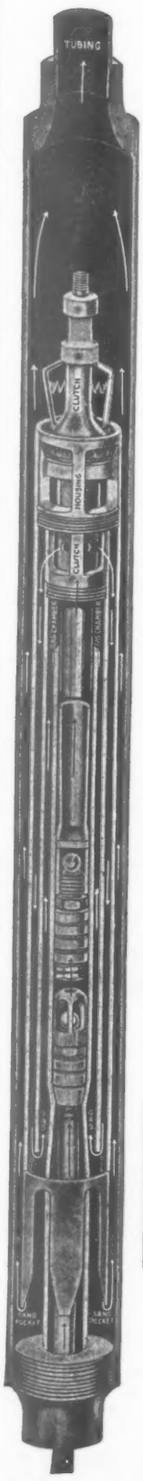

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granted West Texas Refining & Development Co., Oklahoma City, Okla., capital stock $600,000; Texas headquarters, Colorado, Texas; R. L. Ponsler of Cisco, State agent.

RECENT OPERATIONS IN TULSA TERRITORY

The Echo Oil Co. is drilling below 1,000 feet in No. 3 Burrell, CNL NE SW, Section 7-20-13, north of Tulsa. The Regal Oil Co. has started drilling No. 5 Wisey, SE cor. Section 26-19-11; and drilling has been commenced on the Echo Oil Co.'s No. 1-A Grayson, SW cor. NE SW, Section 5-19-12; Fleetwood Oil Co.'s No. 1 Grayson, SW cor. SE NE, Section 5-19-12; Gensen & Harris' No. 1-A Quinn, SW cor. Section 36-19-12 and Thompson & Black's No. 2 Sango, SE cor. NW NE, Section 2-18-13; the Broken Arrow Gas Co. is below 600 feet in No. 3 Pressley, NE cor. SW, Section 1-18-14.

C. M. Hawks and others have a machine in for No. 1-A Webber, C SW SE, Section 36-21-13. The Schermerhorn Oil Co.'s No. 2 Vann, SE cor. SW NE, Section 1-20-13 is good for 6,000,000 feet of gas at 1,178-88 feet and has been shut in.

The Broken Arrow Gas Co.'s No. 3 Pressley, NE cor. SW, Section 1-18-14 was dry and abandoned at 1,384 feet. The company has machine in to drill No. 1 Atkins, C SW NW SW, Section 14-18-14. The Sac & Fox Oil Co. was drilling below 1,200 feet in No. 3 Haikey, NE cor. SE NW SW, Section 33-18-14. Bradstreet and others' No. 1, NW cor. Section 26-17-12, was dry and abandoned at 2,642 feet. Bartlett and others' No. 2-A McHenry, SE cor. NW NE, Section 1-17-14, was dry and abandoned at 1,350 feet.

W. R. Hammond's No. 2 Coppedge, SW cor. SE, Section 19-17-13, will be drilled deeper. C. A. Wade and others' No. 4 Drew, NE cor. SE SE NW, Section 1-17-14 was drilling below 1,100 feet; Frates Oil Co.'s No. 2 McHenry, NW cor. SW SW NE, Section 1-17-14, rigging up tools; Hall and others' No. 1-A Childers, NW cor. NE, Section 3-17-14, spudding; A. J. Pettit and others' No. 1 Childers, NW cor. NE, Section 10-17-14, drilling at 1,402 feet.

The Mounds town lot drilling campaign goes on without much abatement and in this week's field review of operations two new rigs and 5 recently started drilling operations are recorded. A. W. Anthony's No. 3, Lot 2, Block 22, SW cor. NW SE, Section 8-16-12 was abandoned as dry at 2,135 feet. Jackson & Wise's No. 1, SW cor. NE SW SE, Section 8 made a 10 bbls. well after a shot at 2,020-30 feet and Suppes Brothers' No. 1, SE cor. NE SE SW, Section 8 shot at 2,020-30 feet, was good for 10 bbls. Wilcox Oil & Gas Co, Woodberry and others, Dixie Drilling Co., have started new wells in Section 8 and Jones & Cravens have a rig up for No. 1 Maxwell, SE cor. NE, Section 7. Vick and others have a machine in for No. 4 Hill, S SW NE NE, Section 8-16-12. The Antlers Oil Co.'s No. 1, SE cor. NE SW, Section 8-16-12.

West of the city of Tulsa the Sand Springs Home drilled a failure in No. 1 Woodward, SW cor. SE SW NE, Section 6-19-12. Thornton and others' No. 1-A Berry, CSL SE SW, Section 20-19-12, was dry and abandoned at 1,500 feet. H. A. Jensen's No. 7 Fulsom, NW cor. SW NW SE, Section 35-19-12 got sand at 1,345-65 feet and made 10 bbls. a day after the shot while No. 8 Fulsom, a short location away started at 25 bbls. from the same sand, after a shot. Jensen and others' No. 1 Quinn, SW cor. Section 36-19-12, was a 15-bbl. well at 1,304-14 feet, after a shot.

The Riverland Co. completed a failure in No. 1 Sherrell, CEL SW NE, Section 2-18-11.

In the Coweta district, Wagoner County, the Sewell Petroleum Co.'s No. 1 McIntosh, CEL NE SE, Section 25-17-16 was abandoned as dry at 1,380 feet. Knox and others were drilling below 600 feet in No. 2 Coweta Mission, SE cor. SW NW, Section 17-17-16.

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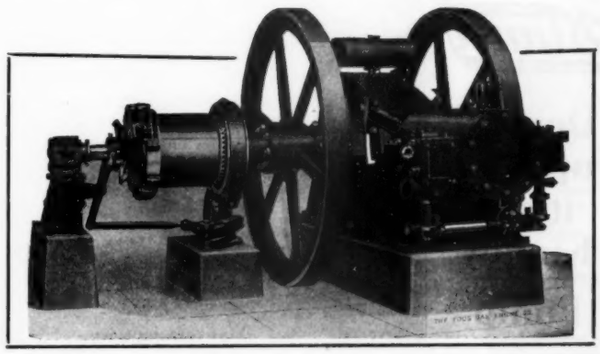

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INTERESTING PROCESS AT TIDAL REFINERY

(Continued from Page 94)

heavier vapor fractions were dissipated to the atmosphere. With all the pipes exposed changes in atmospheric conditions had a direct effect in the operation of the process.

Saving in Fuel

The Hopkins tower reduces to a minimum the influence of atmospheric conditions in plant operation. By utilizing the latent heat of condensation of the vapors to preheat the incoming feed there is a great saving in fuel which has added greatly to the economical operation of the Burton still.

It has also been found that in bringing the incoming feed and vapors in direct contact, the former absorbs the heavier ends of the latter which are returned at once to the shell still for further treatment. This separation of the vapors immediately after they leave the shell still is an important operating feature in securing a pressure distillate of the desired specifications. By regulation of the amount of gas oil feed into the tower, the stillman has direct control of this factor in operation.

If it is discovered for instance that the pressure distillate is of too low gravity indicating that vapor fractions of too high boiling point are being allowed to pass out through the tower into the condenser the operator can remedy the trouble by increasing the feed into the tower, thus securing a condensation within the tower of the objectionable fractions. Briefly expressed the tower greatly simplifies the operation of the process, gives a direct control which assures a finished product of uniform quality with large savings both in fuel and labor.

After the Run

After the run of 27 hours the fire is cut, the unit disconnected from other operating units and the pressure slowly released through the low pressure line. This requires 1½ hours. As the pressure is reduced more distillate of low gravity comes over into the receiving drum. This is known as "pull down gas oil" and is either run with the pressure distillate or kept in a separate tank.

The residuum or "pressure tar" left in the still is pumped out through a cooling coil, the pump starting as soon as the pressure will permit. This residuum, which is a low gravity fuel oil, is used at the Tidal plant as fuel for the skimming and cracking stills and also the power plant. Finally in cleaning the still several hundred pounds of coke are removed. moved.

Yields Flexible

As in the case of all cracking processes the yields from the Burton operation are as flexible as the plant itself. No set of figures could be said to be representative of the results to be obtained without a clear understanding of the conditions under which the cracking units were being operated. Yields will obviously vary with the different grades of gas oil or other charging stock and the percentage of this material available will vary with the quality of the crude. Market conditions for the crude and refined products which are constantly changing will also be reflected in the operating policies of the refiner. In this connection, due to the relatively low gasoline prices which have prevailed during the past two years, there has been no particular incentive for refiners to operate their plants with the view of securing the maximum gasoline recovery.

Starting back with the skimming operations of the Tidal refinery a gasoline recovery which averages around 42 per cent is secured from the 40 gravity crude. The skimimng plant is operated with the view of securing as large a recovery of charging stock as possible. The percentage will vary from 26 to 34 per cent with a gravity range for the charging stock of from 30 to 34 degrees. A 30 per cent recovery of 32-degree gravity gas oil would probably represent a fair average.

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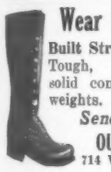

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is 12,000 gallons and this same amount is addedd by feed during the 48-hour cycle making a total of 24,000 gallons for one operation. From this total charge an approximate recovery of 55 per cent pressure distillate is obtained and 10 per cent "pull down gas oil." The residuum or pressure tar remaining in the still constitutes approximately 30 per cent of the original charge. Approximately 1,200 pounds of coke are taken from the shell and tubes after the run. In addition, the non-condensible gases are used as fuel as previously explained.

In rerunning the pressure distillate after it has been treated with acid, a 52 per cent recovery of U. S. Motor (58-60) gasoline is obtained together with 28 per cent of 46-48, 450 naphtha and 16 per cent gas oil bottoms. In addition 1,000 gallons of absorption gasoline is obtained at the absorption plant from the gases taken from the rundown tanks and the rerun operation. These percentages are approximate and will vary with the gravity of the original charging stock.

A greater percentage of gasoline and blending material is possible if desired. At the present time the Tidal management does not seek to recover the maximum amount of the higher gravity products. In at least one of the Standard Oil Co. installations a gasoline recovery as high as 75 per cent has been obtained. Where the higher recoveries are obtained it will be found that the pulldown gas oil and the gas oil bottoms from the rerun stills are put back in the charging stock and rerun. Through this constant recycling of the high boiling point fractions is is possible to increase the percentage of gasoline yield.

Obviously, however, this will tend to decrease the amount of fresh stock that can be run through the stills and it also adds to the difficulties of operation.

The Tidal Company has found it more efficient with market conditions as they have existed the past two years to operate its cracking units with the view of handling a greater amount of stock. Most of the pulldown gas oil and all of the gas oil bottoms are used as blending material to secure a high gravity fuel oil. The present battery of five stills will handle an average of 1,350 bbls. of charging stock daily or the production from approximately 4,000 bbls. of crude daily.

PERCENTAGE OF OIL FROM EACH FORMATION

In a monograph written by Prof. M. H. B. Cronshaw, one of a series on mineral resources issued under the auspices of the Mineral Resource Committee of the British Imperial Institute, is an interesting table showing the degree in which the different geological formations contribute to the current output of petroleum of the world.

Tertiary, 49.4 per cent; California, Gulf Coast of Mexico, Russsia, Rumania, Persia, India, Dutch East Indies, Peru, Argentina. Venezuela, and most of the British Colonies.

Cretaceous, Trias, Permain, 1.0 per cent; Texas, Wyoming, Colorado and Galicia.

Carboniferous, Devonian, 41.5 per cent; Texas, Oklahoma, Kansas, Pennsylvania, Illinois, part of the Appalachian fields and Canada.

Silurian, Ordovician, Cambrian, 8.0 per cent; Lima (Indiana, U. S. A.)

GASOLINE WAR IN MEXICO

KANSAS CITY, Mo., Nov. 15.—Gasoline war between the E. L. Doheny interests (Huasteca Petroleum Co.) and Lord Cowdray (El Aguila Oil Co.) has reached an interesting point in the City of Mexico, according to reports reaching here. The rivalry started a few months ago when the Huasteca Co. spent $1,000,000 in constructing tankage, a bulk distributing plant and filling stations and other equipment. Both concerns have been using paint lavishly in advertising. The efforts of these two concerns are only slightly more enthusiastic than the work of the Pierce interests which is also after the motorist business of Mexico.

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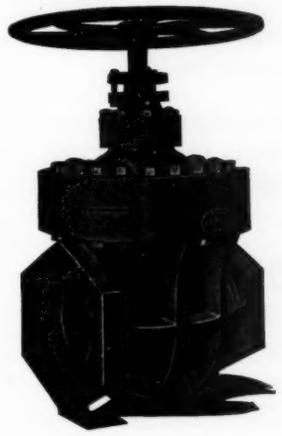

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FUEL OIL AND COAL RESOURCES OF THE U. S.

(Continued from Page 21)

tons of coal and the equivalent of 8,000,000 tons of fuel oil—a ratio of almost 4 to 1 in favor of coal.

The Pacific Coast would have 3,000,000 tons of coal and the equivalent of 44,000,000 tons of fuel oil—a ratio of nearly 15 to 1 in favor of fuel oil.

Taking the United States as a whole, we would have 545,000,000 tons of coal and the equivalent of about 122,000,000 tons of fuel oil—a ratio of 4½ to 1 in favor of coal.

There are certain industries and there are certain areas in which it is practically impossible for fuel oil to compete with coal—and there are certain industries and certain areas in which it is going to be difficult for coal to compete with fuel oil.

Hence the real problem between coal and fuel oil is found among those industries in which coal and fuel oil can stand on something like "common ground"—as power resources.

Comparative Uses

In a survey covering the use of coal during a 9-year period ending with 1922, it was found that coal was used in the industries in the proportion shown in the accompanying table. The first group of industries includes roughly those in which fuel oil can compete under normal conditions in both industries. The second group includes those industries in practically all of which fuel oil can not compete under any circumstances.

Industry	Per Cent
Railroads, Class I	27.7
Industrial companies	25.1
Domestic use	10.3
Electric companies	5.7
Bunker use, in foreign trade	1.2
Bunker use, in domestic trade	0.6
Total	**70.6**
Steel plants	6.4
Made into beehive coke	6.5
Made into by-product coke	8.7
Used as fuel in coal mines	2.2
Exports to Canada and Mexico	3.0
Exports to other foreign countries	1.7
Used by coal gas companies	0.9
Total	**29.4**

In this connection it is interesting to note that in the first group of industries the total coal consumption was about 70 per cent. On the basis of the production of coal in 1923, or 545,000,000 tons, these industries would have consumed 386,000,000 tons of coal.

In 1923 we produced 732,000,000 bbls. of crude oil. If half of it was fuel oil and 3 bbls. of fuel oil equal 1 ton of coal, then our 1923 production of fuel oil was equivalent to 122,000,000 tons of coal.

In other words, we had available approximately 122,000,000 tons of fuel oil to compete with 386,000,000 tons of coal.

Steel plants, beehive coke ovens and by-product coke ovens use coal for coking purposes, hence, obviously, fuel oil could not replace coal in these industries.

It is hardly probable that fuel oil will replace coal as fuel for operating the machinery of coal mines.

Our exports of coal, about 26,000,000 tons in 1923, went to countries in which fuel oil could not follow as a competitor.

And obviously fuel oil could not replace coal in the manufacture of coal gas.

Respective Markets

Therefore the industries that are furnishing and will probably continue to furnish the largest market for fuel oil are our railroads, our factories and industrial companies, our homes with their oil burners, the public service companies and our Navy and merchant marine.

On the basis of the survey previously referred to there is a present annual market from 375,000,000 to 400,000,000 tons of coal—or its "power equivalent."

In 1923 we burned probably 85,000,000 bbls. of crude oil for fuel oil, in addition to consuming 261,000,000 bbls. of fuel oil from our refineries—a total of approximately 346,000,000 bbls. Turned into coal, this would be the power equivalent of about 115,000,000 tons of coal.

When it comes down to the actual

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problem of replacing coal with fuel oil, the forcefulness of the arguments for fuel oil varies in different industries. In our "industries in motion"—railroads, merchantships and battleships—the relative cost of fuel oil is of much less consequence than in our factories and electric light plants. In fact it is a question of whether anything except an actual shortage of fuel oil would cause the American Navy to be changed back to coal burning. Probably next in importance would be our merchant marine—and so long as fuel oil can be had at anything like reasonable prices and with anything like reasonable assurance of supply, a constantly increasing proportion of our merchant marine will use fuel oil. Probably next in importance will be the railroads—and it is practically certain that so long as fuel oil is obtainable at prices even somewhat in excess of the "power equivalent" of coal, the railroads will use fuel oil in increasing amounts.

The superiority of fuel oil for these "industries in motion"—railroads, merchant marine, Navy—is so outstanding that certainty of supply of fuel oil will very probably be of far more importance than the price.

"Industries at Rest"

In the "industries at rest"—factories, electric light and power plants, etc.—the relative cost of fuel oil will be an important factor in the replacement of coal. But in domestic heating, fuel cost will be a matter of secondary consideration. The psychology of heating our homes with a satisfactory burner using fuel oil at anything like a reasonable price, is such that with successful domestic burners and the certainty of supply of oil for them, millions will be installed within the next few years.

But when it comes to the industrial plants and the electric light and power plants, the competition will be much keener between fuel oil and coal than among any of the other users of fuel oil. In the replacement of coal with fuel oil in a factory or an electric light plant the lines of "power equivalence reduced to a cost basis" will be much more closely drawn and the factor of local conditions will probably be the deciding factor in most instances.

Regardless of whether we have 6,000 years' coal supply yet unmined, or whether we have a few hundred years' supply, the fact remains that we have more than enough to supply the greatest conceivable industrial expansion for generations to come.

And regardless of whether or not the United States has 10,000,000,000 bbls. of crude oil yet in the ground, and the entire world has some 60,000,000,000 bbls., the fact remains that, right now, we are mining an average of a little more than 500,000,000 tons of coal a year in the United States and producing a little more than 700,000,000 bbls. of crude oil.

And, of our total production of coal, something less than 400,000,000 tons is used in industries wherein fuel oil is today an active competitor.

Coal as Price Maker

To compete with this 400,000,000 tons of coal we have available today something like 345,000,000 bbls., or about 115,000,000 tons, of fuel oil.

Up to the coming of fuel oil, coal had practically a monopoly as an energy resource in these industries. Hence when we take 115,000,000 tons of fuel oil to the market that, until recently, coal had practically monopolized, we must remember that as coal has been the foundation of this market it has likewise been the price maker.

In this market there are certain industries wherein it will be comparatively easy to replace coal with fuel oil under normal conditions in both the coal and oil industries—and the demand of these industries is today about equal to the fuel oil that we have to offer—hence fuel oil can take the "path of least resistance" under present conditions. This may be called the normal field for fuel oil in the industries, because in this field the inherent superiorities of fuel oil are such

(Continued on Page 140)

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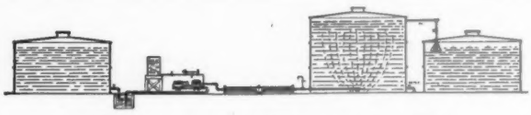
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USES AND LIMITATIONS OF PRESENT GASOLINE MANUFACTURE METHODS

(Continued from Page 72)

2. Absorption pressure.
3. Temperatures of the oil and the gas.
4. Absorption power of the oil.
5. Design of absorber.
6. Percentage recovery desired.

It can be deduced readily from Henry's and Dalton's laws, if the characteristic properties of the gasoline components are the same for the various natural gases, that the amount of oil required to treat a gas of high gasoline content is no greater than the amount of oil required for a leaner gas. Also the amount of oil required is inversely proportional to the absolute pressure.

Definite Oil Rate

Summing up these statements, it may be said that at every absorption pressure there is a definite oil rate per unit volume of gas which will completely extract the gasoline from natural gas no matter what its gasoline content may be, all other conditions being the same. With these facts and theories established, it can be readily understood why the oil absorption process has been gradually encroaching upon the field formerly held by compression plants. The amount of equipment and attention required is greater in the case of oil absorption plants. This difference is not worthy of much consideration unless in very small plants. For such plants the cost of operation is a serious item and must be kept to a minimum.

The theories regarding the oil absorption process have been rather well developed, so it is believed future improvements must come mainly from the development of more economical and more efficient equipment. It is evident future developments in this process must come from mechanical engineers, and it is well for all to realize that a certain and definite amount of oil circulation is required to accomplish results with the oil absorption process.

A decrease in oil rate below that required for complete gasoline extraction naturally results in a decrease in gasoline yield, but this percentage decrease in yield is not of the same magnitude as the percentage decrease in oil rate. Besides the gasoline obtained by low rate of oil circulation is a very stable product with a low gravity and consequently generally commands a premium over the regular market price of ordinary absorption gasoline. Several plants have been built without provision for adequate oil circulation. Such plants naturally have given a greater production in proportion to investment than some of the more efficiently designed and operated plants. It is true such plants have in quite a few instances proven economical installations, while the efficiency of gasoline extraction was deplorably low.

Charcoal Process Plants

The use of solid absorbents, and in particular the use of highly activated charcoal, has been practiced for the recovery of gasoline from natural gas since the close of the war. The ability of charcoal to absorb gasoline vapors from natural gas has been made familiar to practically every plant operator by the extensive use of the charcoal testing method.

The general features of a charcoal plant do not differ materially from those of an oil absorption plant. Natural gas is passed through containers holding activated cocoanut shell charcoal. After the charcoal has reached the desired saturation with gasoline vapors, the gas is turned from the vessel containing the saturated charcoal into another absorber while steam is passed through the saturated charcoal. The water and gasoline vapors resulting from this steam distillation are passed through condensing coils where the water and gasoline vapors are liquefied and separated.

The general scheme of operation consists in having three absorbers or three groups of absorbers. In the cycle of operation one absorber is in the stage of absorption, one in the stage of distillation and one in the stage of cooling, the cooling of the charcoal being effected by the residue gas from the absorber, into which the

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untreated gas is entering. This cycle is repeated at generally one- to two-hour intervals.

The theory underlying absorption of vapors by charcoal and other solid absorbents is not fully understood nor well developed, and it is believed any attempt to present theories that have been formulated at present would not be justified.

As the charcoal process stands today there are five possible applications. There are: (a) municipal gas, (b) lean gas which can be economically contracted for, (c) combination processes in future installations, (d) portable plant for exploiting new fields (e) residue gases from existing plants.

Municipal Gas

The application of the charcoal process to municipal gas has proven its advantage in its successful and profitable operation at several places. There are difficulties in this application occasioned entirely by fluctuations so that wherever it would be at all profitable to treat city gas the charcoal process of a combination process would generally be the best method.

Lean Gas

This is another field in which the charcoal process has advantages. A charcoal plant will function regardless of pressure so that with a charcoal plant well pressure can be taken advantage of for a longer period. The efficiency of the charcoal process is another advantage. It seems to be true that the lower pressure and the leaner the gas treated by oil absorption the lower is the efficiency of gasoline extraction. The comparatively small volume of cooling coil water required is in favor of this application. In some localities the available cooling water will not suffice for the requirements of an efficient oil absorption plant. That the fundamental elements of a charcoal plant are designed according to gallons of production and not for the volume of gas handled is another fact recommending the application of the charcoal process to lean gas.

The allowable saturation of charcoal with gasoline for efficient extraction amounts to about 12 to 15 per cent by weight. In the treatment of residue gas from gasoline plants a saturation of only about 6 to 10 per cent is obtained.

Combination Process

It is in this field that the charcoal process offers the greatest advantages for the future. It is possible to build a fairly efficient oil absorption plant very cheaply. A combination of an under designed oil absorption plant with a charcoal plant would be a very economical installation for treating large volumes of gas. Such an installation has much to recommend it besides the major consideration of low initial cost. A better grade of gasoline would be produced, less cooling coil water would be required, there would be less cost of upkeep and maintenance, it would probably attain a high efficiency of gasoline extraction and have a greater flexibility for meeting sales specifications.

As regards the treatment of rich gas, the charcoal process would undoubtedly prove a technical success by itself. However, necessity of gas transmission and economy of installation and operation would probably warrant for small volumes of rich gas a combination single stage compression and the charcoal process. Single stage compression to about 50 or 75 pounds gauge pressure would probably in all cases effect a condensation of sufficient quantities of the gasoline constituents so the residue from the compression elements could be readily subjecetd to treatment by a charcoal process plant.

The economical possibilities of using low pressure absorption with crude oil in combination with a charcoal process plant merits investigation by the large oil producing companies.

Portable Plant

The possibilities of the charcoal process, in this direction, are obvious at a glance. The heaviest element in a charcoal plant proper is the boiler. It is simple oil field engineering to transport a boiler. The absorbers, miscellaneous tanks, coils and lines are few and small.

The application of the charcoal process

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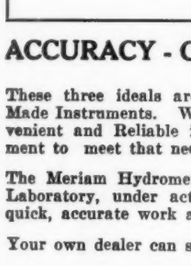

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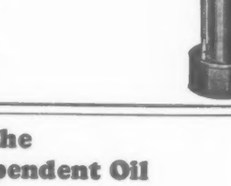

to residue gases of existing plants have been proven by its successful application in several instances. The Landreth Gasoline Co. recently installed a charcoal process plant to treat the residue gas from its oil absorption plant at Ibex, Tex. Forty thousand pounds of charcoal were placed in the absorbers. The result of two months' experience have shown that this installation has yielded approximately 9,000 gallons of gasoline per day or about 0.20 gallons per 1,000 cubic feet of gas treated. Charcoal tests on the inlet gas to the charcoal plant showed values ranging from 0.13 to 0.17 gallons per thousand feet. On the basis of these figures the installation costs per gallon of actual production have been much less than those mentioned heretofore by advocates of the charcoal process.

In conclusion it might be said the two-stage compression process is restricted for efficient gasoline extraction to exceedingly rich gas or vapors where volumes of gas handled are small or where blending is practiced. The oil absorption process is especially adapted for higher pressure, rich gas and large production. The charcoal process is particularly suited for smaller plants, lean gas, low pressure and for use in combination with the other processes.

Expo. Directors Decide on Annual Oil Show in Tulsa

The International Petroleum Exposition in Tulsa, has wound up its affairs for the year. After all accounts had been paid, the entire guarantee fund of 1924 returned to the guarantors and the unpaid balance of the 1923 guarantee fund also returned, the Exposition closed with a balance of approximately $10,000 in the treasury and valuable assets in the form of new steel buildings, furniture and other equipment on the Exposition grounds.

This year' show was an unqualified success and the board of directors have decided to stick to the original plan of holding it annually. Edward F. McIntyre, general manager of the Exposition for the past two years was tentered a contract for another year at a meeting of the executive committee Tuesday.

FUEL OIL AND COAL RESOURCES OF THE U. S.

(Continued from Page 137)

as to make the price a matter of seconary importance.

The field for fuel oil will expand much faster with cheap prices than it will contruct with high prices, because the limit of its field on a downward market is the limit of the present supply plus the assurance of future supply, whereas coal will probably never replace fuel oil in certain industries so long as fuel oil is obtainable.

Bearing in mind the inconceivably vast and absolutely certain supplies of coal in the United States, it would seem that the wise and economic course for the oil industry to pursue would be to produce oil primarily to supply gasoline—and at the same time assure itself of a market that would absorb all of the fuel oil left over from the refineries and cracking plants.

Gasoline Primary Purpose

In other words, the oil industry is essentially the servant of the industries built around the internal combustion engine—and it is not operated primarily to produce fuel oil to compete with coal.

However if, in our zeal to bring tremendous quantities of crude oil to the surface of the ground, we bring about overproduction, cheap crude, cheap gasoline and fuel oil cheap enough to compete in a large way with coal, then the millions of users of cars and trucks and the scores of industries that would burn cheap fuel oil instead of coal would be the beneficiaries of the shortsighted policy of the oil industry.

303 Years Ago

Three hundred and three years ago, a little band of Pilgrim Fathers gave thanks because they conquered the rigors of the cold, bleak New England climate.

This year millions of Americans will pause to give thanks, following the example of the early settlers.

From a small beginning, Thanksgiving has become a National holiday.

Through the Classified Wants Section you can begin with a small advertisement, and give nationwide publicity to the leases, production, equipment, etc., that you want to buy or sell.

The readers of The Oil and Gas Journal are thousands in number and study the Classified Wants Section every week. Let these interested readers see your advertisement in next Thursday's issue. It will be there if you mail it at once.

The Oil and Gas Journal
Classified Wants Section
"Biggest in America"

Detailed Operations in Eastern Fields for Month of October

EASTERN FIELDS

Fields—	Comp.	Prod.	Dry	Gas
Allegany	19	27	0	0
Bradford	94	218	4	0
Middle Field	6	13	2	0
Venango-Clarion	37	43	2	3
Butler-Armstrong	23	34	6	5
Southwest Pennsylvania	18	16	3	9
West Virginia	71	432	13	34
Southeast Ohio	94	825	20	17
Total October	362	1,608	49	68
Total September	403	1,899	58	76
Difference	41	291	9	8

Fields—	Rigs	Drg.	Tot
Allegany	11	14	25
Bradford	26	80	106
Middle Field	2	3	5
Venango Clarion	2	24	26
Butler-Armstrong	13	14	27
Southwest Pennsylvania	10	35	45
West Virginia	80	138	218
Southeast Ohio	38	100	138
Total October	182	408	590
Total September	143	419	562
Difference	39	11	28

WELLS COMPLETED
ALLEGANY FIELD

McAndrews, E. J. Atwood et al 2
Dean, H. A. Austin 1
Fee, Jordan & Huggins 1
Trask, J. A. Withey et al 1
Fee, Hazelwood Oil 2
Fee, Empire Gas & Fuel, Ltd. 2
Fee, Empire Gas & Fuel, Ltd. 2
Canfield, Carter & Bradley 1
Deyoe & Higbee, T. B. Love et al..... 1
Cass & Putnam, Putnam & Wilson...water
Fee, Empire Gas & Fuel, Ltd., and Breckenridge 1
Fee, J. E. LeSuer et al 3
Fee, Henline et al 2
Childs, Neil Wilson 1
Fee, L. A. Wilson 2
Fee, Sawyer & Wasson 1
Fee, Dusebery et al 1
Fee, Sawnett Oil Corp. 1
Fee, G. N. Hill 2

Wells completed 19
Production 27

BRADFORD FIELD

Franks, Forest Oil 2
Baldwin, Forest Oil 4
Noble, Forest Oil 2
Barse, Burns Brothers 1
Kating, Potter & Nichols 2
Burns, Arthur Yahn 4
D. C & B., A. Shorman 2
Fee, G. L. Shoff 2
Loop, E. M. Daly 1
Shepard, South Penn Oil 2
Jones, South Penn Oil 3
Morse, Joseph Minnich 2
Borden, W. B. Miller 2
Skinner, W. E. Burdick 2
Borden, T. P. Thompson & Son 5
Chambers, A. J. Bucher 1
Borden, T. B. Wilson 1
Borden, W. A. Bolles 1
Doubleday, Pressue Oil 1
Bigham, Hazelwood Oil 2
Enterprise, Hazelwood Oil 1
Willett, J. H. Gibson 1
Gibson, Hazelwood Oil 1
Raver, J. F. Magee 2
Sill, Hope Oil 2
Lafferty, Hazelwood Oil 6
Melvin, South Penn Oil 1
Melvin, South Penn Oil 1
Melvin, South Penn Oil 1
Melvin, South Penn Oil ..... dry
Fee, Charles McGavern 2 ..... dry
Cochrane, Nichols Run Oil 118 ..... dry
Cochrane, Nichols Run Oil 119 4
Cochrane, Nichols Run Oil 120 3
Harmon & Ramsbottom, Grace Ramsbottom, 14 ..... dry
McCaffrey & Western, Mrs. H. S. Western 23 3
Bing., 391, George W. Bovaird 71 ... 4
Bing., 371, Lane No. 1 et al 1
Bing., 420, C. G. Grow 26 2
Bing., 389, D. W. Daly 35 1
Bing., 369, D. W. Daly 55 3
Bing., 370, C. L. Wann et al 33 4
Bing., 376, R. M. & James George 14.. 5
Bing., 368, Forest Oil, Inc., No. 9, 40.. 5
Vincent heirs, Howard & McCallum 84 2
Fee, J. C. Looker et al 20 4
Fee, E. H. & E. J. Shippey 10 1
Franchot, W. C. Kennedy Co. 10 2
Franchot, H. & J. G. Shannon 2
Fee, Hazelwood Oil No. 2 18 3
Fee, J. A. Walters estate 38 2
Franchot, Wilson & Yeager 4 1
Fee, R. O. Landers et al 29 1
South Penn Oil, John Jackson Jr. 16... 1
Leasure, South Penn Oil 3
Griffith et al, Hertzell & Knabb..... 2
Bryner Co., Mrs. Jos. T. Jones 3
Fee, A. W. Palmer 2
Fee, A. A. Park 1
Fee, W. C. Kennedy Co. 35 5
Bing., 452, South Penn Oil 49 5
Bing., 150, South Penn Oil 53 2
Bing., 184, Associated Producers 277... 4
Bing., 156, South Penn Oil 51 4
Fee, South Penn Oil 14 2
Bing., 176, Hazelwood & Kennedy 95... 3
Bing., Associated Producers 288 3
Bing., Associated Producers 287 2
Bing., Associated Producers 291 2
Bing., Associated Producers 302 3
Fee, South Penn Oil 88 2
Kennedy & Clark, Phoenix Oil 153 ... 2
Bing., 136, Kennedy Co., No. 4, 50 ... 1
Bing., 136, Kennedy Co. No. 4, 51 3
Paul estate, South Penn Oil 18 3
Fee, Leech estate et al 3
Bing., 439 South Penn Oil 1
Bing., 379, Hazelwood Oil 3
Bing., 591, Associated Producers 328... 5
Bing., 576, South Penn Oil 100 2
Bing., 576, South Penn Oil 96 4
Bing., 581, Associated Producers, 327 .. sand 3
Bing., 499, South Penn Oil 36 3
Bing., 439, South Penn Oil 70 2
Bing., 549, South Penn Oil 62 6
Moore, C. Moore 2
Nolan, Katherine Nolan 2
Bingham, H. E. Camp estate 1
Wright, Wright & Johnson 4
Bingham, J. L. Yerdon 2
Bingham, Andrus & MacDowell 1

Wells completed 94
Production 218
Dry 4

MIDDLE FIELD

Osgood, Rembold & Co. 4 10
McClafferty, Green & Co. 1 ..... dry
Larson, Bennett & Shear ..... dry
Lot 3767, F. J. Moser 23 1
Lot 385, Kane Oil 39 1
Johnson, Clinger Bros. & Taggart..... 1

Wells completed 6
Production 13
Dry 2

VENANGO-CLARION

Eakin, C. B. Reeves 14 1
Hovis, H. B. Thorn & C. L. Irwin 15.. 1
Hollister, S. Y. Ramage 43 1
Gilmore, McCandless, Hindman et al 14 1
Stevenson, Midland Oil Corp. 33 3
Stevenson, Midland Oil Corp. 34 3
Stevenson, Midland Oil Corp. 35 2
Kern, O. B. Kern 7 1
Peebles, Earp, Kelly & Selden 5 2
Roess, Brutche & Turk, Smith, Brutche & Clark 12 2
Lyle, Wilbur & Goltz 49 1
Collins, Louden & Doverspike 29 1
Roess Brothers, Roess Brothers 54 1
Hancock, T. J. Blair & Co., 37 1
Hancock, T. J. Blair & Co. 38 1
Henderson, Robt. & George Foggan.... abd
Clark, Robert and George Foggan ..... abd
Sweetapple, W. H. & A. L. Swwetapple 33 1
Smithman, J. B. Smithman 81 1
Stiles tract 74, S. Y. Ramage 70..... 1
Stiles tract 74, S. Y. Ramages 71 1
Stiles tract 74, S. Y. Ramages 72 1
Corbett & White, Corbett & White 2.. 1
Troutner, Rossman & Turner 1 1
Troutner, Rossman & Turner 2 3
James, McKim Titus et al 4 1
Edinger, Hovis, Porter et al 2 1
Plumer, Henderson & Gibb 15 1
Beers, Phillips, Reitze & Braymer 2.... dry
Miles, Miles, Leedom et al 3 1
Miller, J. F. Liken 1 1
Crawford & Gregory, Oil Well Supply 105 ..... gas
Clarion—
Detar, F. Banner 1 2
Kapp, Alum Rock Gas 1 1
Lewis, United Natural Gas 2 ..... dry
Best, Alum Rock Gas 1 ..... gas
Colleas, E. A. Bream Co. 14 2
Hockman, L. J. Shaw 9 1
McKenzie, Lamberton & Phillips 3..... gas

Wells completed 37
Production 43
Dry 2
Gas 3
Abandoned 2

BUTLER-ARMSTRONG

Bell, Craig, Hindman et al 3 1
Campbell, H. H. Campbell 3 4
McKinney, G. F. Hovis et al 1
Bell heirs, Smith, Burkett et al 1..... 1
Barnhart, W. D. McCarrier et al 3..... 3
Christy, Craig & Timblin 2 5
Campbell, Baird, McCandless et al 3. dry
Campbell, Baird, McCandless et al 1. dry
Meals heirs, Carl Hilliard et al 10..... dry
Snow, A. C. Snow ..... dry
Robinson, Robinson & Berry 2
Smith, Jane Oil ..... abd
Rice, George Garwick & Co. 1 2
Neel heirs, Edeburn & Co. 1 1
Wylie heirs, Saxonburg L & H. 1..... gas
Woods, Woods & Heeter 1 ..... gas
Connors, Simon Connors 1 ..... dry
Sasse heirs, Denny, Sasse et al 4 8
Kobler heirs, E. J. Dodds et al ..... gas
Niblock, J. A. Elliott & Co. 2 ..... gas
Michel, T. W. Phillips Gas & Oil 1 ..... gas
Pyle, E. H. Pyle et al 2 5
Cookson, Garvin et al 1 1

Wells completed 23
Production 34
Dry 5
Gas 5

ALLEGANY COUNTY
Rigs

McAndrews, E. J. Atwood et al.
Duke, First National Bank of Olean.
Taylor, C. W. Taylor & Sons.
Porter, State Bank of Bolivar No. 28, 29.
Deyoe & Higbee, T. B. Love et al.
Fee, J. P. Herrick.
eFe, Emma A. McEwen.
Smith & Gray, J. G. Gray.
Fee, I. Willets estate.
Fee, Henline et al.
Fee, L. A. Wilson.

Wells Drilling

Heseltine estate, Ruby C. Duke et al.
Fanton, E. M. Ketchner.
Fee, Empire Gas & Fuel, Ltd.
Citizens National Bank., Wellsville, 68, M. E. Goodell.
Kinley et al., Turner Brothers & Hungerford.
Burdick estate, W. B. Turner et al.
Kinley Oil, W. J. Weller et al.
Kinley Oil, W. J. Weller et al.
Kinley Oil, W. J. Weller et al.
Fee, Empire G. & F., Ltd., & Breckenridge.
Fee, J. E. LeSuer et al.
Fee, Turner Oil Corp.
Childs, Neil K. Wilson.
Fee, Sawnett Oil Corp.
Rigs, 11; wells drilling, 14; total, 25.

BRADFORD FIELD
Rigs

Bing., 490, T. H. Kennedy Co. No. 2, 126.
Bing., 369, D. W. Daly 56.
Bing., 370, R. M. & James George 15.
Clugston estate, Parker Farm Oil Corp. 10.
Fee, Hungeville et al 4.
Fee, J. C. Locker et al 21.
Franchot, D. & P. Oil 22.
Franchot, J. B. Walters et al 11.
Erie Railroad Co., South Penn Oil.
Leasure, South Penn Oil.
Drake heirs, Hannon Oil.
Bing., 452, South Penn Oil 50.
Fee, South Penn Oil 15.
Fee, W. C. Kennedy Co. 40.
Bing., 176, Hazelwood & Kennedy 96.
Bing., 184, Associated Producers 323.
Bing., 184, Associated Producers 331.
Bing., Associated Producers 305.
Fee, South Penn Oil 89.
Bing., 136, Kennedy Co. No. 4, 52.
Bing., 136, Kennedy Co. No. 4, 53.
Bing., 576, South Penn Oil 101.
Bing., 499, South Penn Oil 37.
Bing., 579, South Penn Oil 97.
Bingham, Andrus & MacDowell.
Lawton, Oil City Trust.

Wells Drilling

Riddell estate, South Penn Oil 40.
Weston, Jr., Tr., South Penn Oil 60.
Redfield, South Penn Oil 92.
Fee, South Penn Oil 71.
Fee, J. V. Golden 19.
Fee D. F. Andrews et al 12.
Fee, Hungeville et al 4.
Franchot, Wile Brothers 5.
Franchot, W. C. Kennedy Co. 11.
Armstrong estate, South Penn Oil 16.
Griffith et al, Hertzel & Knabb.
Fee, L. G. Dana.
Fee, Mrs. Joseph T. Jones.
Fee, South Penn Oil.
Fee, Sabra J. George.
Quintuple Oil, H. Newell.
Fee, Kaber & Kaber 38.
Bing., 184, Prod. 330.
Bing., 150, South Penn Oil 54.
Fee, South Penn Oil 33.
Fee, W. C. Kennedy Co. 39.
Bing., 184 Associated Producers 329.
Bing., Associated Producers 308.
Bing., Associated Producers 396.
Quintuple, Moore & Bradley.
Hazelwood & Kennedy, Holding Oil Corp. 20.
Kennedy & Clark, Phoenix Oil 154
Fee, Hazelwood & Kennedy No. 3, 65.
Fee, Linnie E. Barcroft.
Bing., 440, South Penn Oil.
Bing., 410, South Penn Oil.
Bing., 582, Associated Producers 272.
Bing., 533, South Penn Oil 63.
Bing., 567, Associated Producers 327.
Bing., 439, South Penn Oil 72.
Larson, M. Shear 1.
Cochrane, Nichols Run Oil 121.
Harmon & Ramsbottom, Grace Ramsbottom 15.
Bing., 431, J. A. Hooper 1.
Bing., 391, George W. Bovaird 72.
Bing., 388, C. L. Wann et al 43.
Bing., 370, C. L. Wann et al 34.
Bing., 368, Forest Oil, Inc., No. 9, 41.
Bing., 173, Kishwaukee Oil 46.
Bing., 172, Kiswaukee Oil 47.
Fee, Grant & Mohan 57.
Franks, Forest Oil.
Baldwin, Forest Oil.
Noble, Forest Oil.
Middaugh, M. J. Lilly estate.
Barse, Burns Brothers.
Burns, Arthur Yahn.
Loop, E. M. Daly.
Shepard, South Penn Oil.
Jones, South Penn Oil.
Jones, Joseph Minnich.
Borden, T. P. Thompson & Son.
Borden, C. J. Mitchell.
Chambers, A. J. Bucher.
Borden, Raff & Schwab.
Borden, T. B. Wilson.
Doubleday, Pressure Oil.
Emerson, W. J. Healy.
Bingham, Barry Brothers.
Corwin, J. H. Gallagher.
Jack, J. & H. M. Jack.
Hodge, South Penn Oil.
Fee, Evans & Wood.
Nolan, Katherine Nolan.
Melvin, South Penn Oil (3 wells).
Vincent, S. H. Elder & Co. et al.
Wilbur, South Penn Oil.
Emerson, G. L. Rhodes et al.
Emerson, South Penn Oil.
Bingham, H. P. McKalip et al.
Lawton, Oil City Trust.
Bingham, South Penn Oil.
Wright, South Penn Oil.
Rigs, 26; wells drilling, 80; total, 106.

MIDDLE FIELD
Rigs

Billstone, D. McDonald.
Lot 2767, F. J. Moser 24.

Wells Drilling

O'Hara, Pequignot & Co. 10.
Lot 3664, South Penn Oil 37.
Lot 3593, Hoskins & Roeder.
Rigs, 2; well drilling, 3; total, 5.

VENANGO-CLARION
Rigs

Hovis, Hovis, Surrena et al 25.
Clarion—
Garis, Alum Rock Gas. 6.

Wells Drilling

Eakin, C. B. Reeves 15.
Hollister, S. Y. Ramage 44.
Iron & Coal, R. C. Hancox et al 2.
Vandyke, Braden & Co. 1.
Stevenson, Midland Oil Corp. 36.
Kern, C. B. Kern 8.
Nelson, S. C. Sampson 7.
McCalmont, S. P. McCalmont estate 41.
Smithman, J. B. Smithman 82.
Salles tract 74, S. Y. Ramage 73.
Donaldson, Donaldson, McDowell et al 2.
Miles, Miles, Leedom et al 4.
Mark, Stover, Graham et al 7.
Tingley, Sidney Mong 3.
Clarion—
Kapp & Graham, Alum Rock Gas 9.
Corlette & Kaufman, Corlette & Kaufman.
Corbett & Wilson, H. Wilson 4.
Kohler Brothers, Kohler et al 5.
Varner, Franklin Trust 5.
Whitling, Alum Rock Gas 19.
Heeter, Master & Hess 8.
Gardner, Alum Rock Gas 1.
Heeter, Heeter Oil & Gas 2.
Porter, Lamberton & Phillips 1.
Rigs, 2; wells drilling, 24; total, 26.

BUTLER-ARMSTRONG
Rigs

Campbell, Smith, Burkett et al 1.
McKinney, G. F. Hovis et al 2.
Hilliard, Carl Hilliard et al 7.
Boggs heirs, R. C. & W. V. Binkerd.
Donnelly, Bear Creek Oil.
Johns, I. N. Johns.
Griffith, E C. Griffith.
Evans City cemetery, W. Pfeifer & Co. 2.
Shepherd, American Natural Gas 1.
Kamerer, Mr. and Mrs. E. R. Kamerer 3.
Kaylor, McCullough Gas 1.
Delaney, Delaney Brothers 1.
Geibel, Geibel Brothers 1.

Wells Drilling

Campbell, Campbell & Sherwin 2.
Hartung heirs, American Natural Gas 1.
John Hehn heirs, Elliott & Neff 2.
Henry heirs, American Natural Gas 1.
Keystone Mining, W. & E. J. Porter et al.
Brady tract, L. D. Berry 20.
Huselton, J. M. Hicks 21.
McKee, T. W. Phillips Gas & Oil 5.
Pyle, E. H. Pyle et al 3.
Pyle, Bauder, Dambuch et al 5.
Rader, A. Rea 1.
Croft, Garvin et al 1.
Duncan, J. L. Peters & Son 2.
Bauer, Burns, Bauer et al 6.
Rigs, 13; wells drilling, 14; total, 27.

SOUTHWEST PENNSYLVANIA
WASHINGTON COUNTY

Mansfield, Tague, Lutton & Co. 1..... gas
Berry, Perry & Grayson 1 ..... gas
McCarty, W. Bethlehem Oil Co. 1..... gas

ALLEGHENY COUNTY

Campbell, National O. & G. Co. 1..... gas
Hiland Dev. Co., M. M. Walley & Co. 1.. 3
Fowler, Elliott & Co. 1 ..... gas
Hinkle Bros., Hinkle Bros. 1 ..... gas
Watenpool, Leidecker & Co. 1 8
Hicks, Black Bros. & Co. 3 2
Pittsburgh Coal Co., S. D. Robinson 2 .. dry
Rex, Cobert O. & G. Co. 1 1

BEAVER COUNTY

Cook, G. W. Dawson 1 ..... dry
Sweringen, P. R. Laughlin 1 1
Kerner, H. K. Development Co. 2 1

GREENE COUNTY

Kennedy, Shannon Run O. & G. Co. 2.. dry
Patterson, Davis O. & G. Co. 1 ..... gas
Muckle, Waynesburg Home G. Co. 1.... gas
Closser, Mfrs. L. & H. Co. 9 ..... gas

Wells completed 18
Production 16
Dry 3
Gas 9

WASHINGTON COUNTY
Rigs

Craft, N. G. Co. of W. Va. 1.

Wells Drilling

Mansfield, Tague, Lutton & Co. 2.
Day, Mfrs. L. & H. Co. 2.
Ellwood, Emerald Pet. Co. 1.
Westfall, Bell & Co. 3.

ALLEGHENY COUNTY
Rigs

Harting, J. S. Wallet & Co. 1.
McKinney, M. L. Williams 2.
Miller, Geo. Robinson & Co. 1.

Wells Drilling

Pahlman, Amer. N. G. Co. 3.
Hardt, Guy W. Myers 1.
Buck, M. M. Walley & Co. 2.
McKibben, Black Bros. & Co. 6.

BEAVER COUNTY
Rigs

Spence heirs, H. L. Stotler 4.

Wells Drilling

Hineman, Coulter & Cook 1.

GREENE COUNTY
Rigs

Renner, So. P. O. Co. 2.
Caseman, Caseman O. & G. Co. 1.
Brown, Brown O. & G. Co. 4.
Boyd, Mfrs. L. & H. Co. 1.
Baldwin, Chas. T. Sutton 1.

Wells Drilling

South, Fred Garrison 1.
Stephens, Phila. Oil Co. 1.
Headley, C. M. Fox O. & G. Co. 1.
F. Lemley, Carnegie Gas Co. 2.
S. H. Lemley, Kennedy, Black & Co. 1.
A. Lemley, Carnegie Gas Co. 1.
Gilman, Clovis O. & G. Co. 1.
Williamson heirs, J. L. Garard 4.
Kent, Peoples Gas Co. 1.
Phillips, Peoples Gas Co. 2.
Cumberledge, H. D. Freeland & Co. 1.
Rutan, Carnegie Gas Co. 1.
Campbell, Carnegie Gas Co. 2.
Carter, N. G. Co. of W. Va. 1.
Hughes, Boundy Bros. & Co. 1.
Chess, Mfrs. L. & H. Co. 1.
Styps, Enterprise O. & G. Co. 1.
Gump heirs, New Freeport O. & G. Co. 1.
Sellers, J. H. Null & Co. 1.
Brooks, Rex O. & G. Co. 7.
Gardner, Mfrs. L. & H. Co. 1.
McGreevy, Waynesburg Products Co. 2.
Mankey, Greensboro Gas Co. 1.
Martin, Carnegie Gas Co. 1.

WESTMORELAND COUNTY

Wells Drilling

Booth-Flinn, Peoples Gas Co. 2.
Sellers Bros. Peoples Gas Co. 1.
Rigs, 10; wells drilling, 35; total, 45.

WEST VIRGINIA
LEWIS COUNTY

Snyder, Hope Gas Co. 2 ..... gas
Rorhbaugh, Federal O. & G. Co. 2 ..... dry

HARRISON COUNTY

Allbright, Hope Gas Co. 7 ..... gas
Gaston, Hope Gas Co. 1 ..... gas
Morris, Hope Gas Co. 1 ..... gas

MARION COUNTY

Moore, Moore-Tex Oil Co. 2 ..... gas
Smith, Owens B. & M. Co. 1 ..... dry
Barr, Owens B. & M. Co. 1 ..... dry
Davis, Hope Gas Co. 1 ..... gas

MONONGALIA COUNTY

Price heirs, Hope C. & R. Co. 1 ..... gas

WETZEL AND TYLER COUNTIES

Smith, Hope C. & R. Co. 1 ..... gas
W. F. Smith, Pgh. & W. Va. G. Co. 3.. dry
Allen heirs, Myers Gas Co. 1 ..... gas

MARSHALL COUNTY

Pyles, Mfrs. L. & H. Co. 2 ..... gas
Markey, Decem Dev. Co. 2 15
Evans, Decem Dev. Co. 1 ..... gas

DODDRIDGE COUNTY
Dotson, Carter Oil Co. 1 ..... dry
Underwood, Berry & Underwood 1 ..... gas
Merritt, Hope C. & R. Co. 1 15
Burbridge, J. E. Trainer 1 5
Smith, Phila. Oil Co. 5 80
Douglass, Trainer & Travis 2 10
Freeman, Clifton O. & G. Co. 2 30

RITCHIE COUNTY
Mason, Hope Gas Co. 3 ..... gas
Nay, Loudin & Co. 4 ..... gas
Doak-McCullough, Tom Lambert 1 .... gas
Jordan, Hope Gas Co. 1 5
Bickerstaff, So. P. O. Co. 3 ..... gas
A. W. Smith, Groves & Parrish 8..... 1
A. W. Smith, Groves & Parrish 2 3
Wymer, Hughes River Oil Co. 1 ..... gas
Prince, Cairo Oil Co. 8 1
Scott, Hope Gas Co. 1 2
Burke, Continental O. & G. Co. 6 1
Haney heirs, Marco Oil Co. 1 3
McGinnis, Elder & Co. 1 1

GILMER COUNTY
Bennett heirs, Hope Gas Co. 1 5
Gainer, Star O. & G. Co. 1 5
Bowlinger heirs, Ben Bell & Co. 1 ..... dry
Hardman, Hope C. & R. Co. 6 5
Wright, Pgh. & W. Va. G. Co. 1 ..... gas
Jackson, Chemical Oil Co. 1 1
Bennett heirs, W. P. Bickle 5 ..... gas

WIRT COUNTY
Rathbone, Roberts Brothers 135 5

WOOD COUNTY
Duerr, J. L. West & Co. 1 ..... dry
Griffin, C. L. Smith 1 1
Kelley, Quick-Davis Oil Co. 1 ..... gas
Davis, T. J. Rothwell 1 1
Rice, Park Bowser 1 3
King, So. P. O. Co. 9 2

PLEASANTS COUNTY
Racer, B. E. Crippin 2 ..... dry
Poor Farm, Poor Farm Oil Co. 1 1
Hammett-King, Hope C. & R. Co. 1 ... 5
Knight, Knight Farm O. Co. 3 ..... dry
Allen, W. H. Nolan & Co. 2 ..... dry
Messer, Howard Hall & Co. 1 ..... gas
Poynter, Howard Hall & Co. 1 ..... dry
Fleming, Rock Run O. & G. Co. 3 5
Hamilton, Carter Oil Co. 1 3

ROANE COUNTY
McDade, Carter Oil Co. 1 ..... gas
Shepard, Heck Oil Co. 2 ..... gas

CALHOUN COUNTY
Linn, Hope Gas Co. 1 3
Garrett lot, Hope C. & R. Co. 1 3
Garrett 19 acres, Hope C. & R. Co. 1 ... 5
Yoak, Euclid Oil Co. 1 8

JACKSON COUNTY
Freeman, J. N. Griggs 1 ..... dry

LINCOLN COUNTY
Ray, C. C. Wolf 5 ..... gas
Adkins, Superior Gas Co. 2..... gas
Baker heirs, Baker Bros. 1 ..... gas

KANAWHA COUNTY
Young, U. F. G. Co. 1 ..... gas
Osborne, U. F. G. Co. 2 ..... gas
Hinesman, U. F. G. Co. 1 ..... gas
Quarrier, Owens B. & M. Co. 3 ..... gas
Boyd, U. F. G. Co. 1 ..... gas

BOONE COUNTY
L. R. & B. Track B, Pure Oil Co. 13.. 180
Coal R. M. Co. Owens B. & M. Co. 21.. dry
Cassingham, Owens B. & M. Co. 4 .... gas

CABELL COUNTY
Carter, Aetna O. & G. Co. 1 2
Nixon, Aetna O. & G. Co. 1 ..... gas
Duty, Consolidated O. & G. Co. 3 .... gas

NICHOLAS COUNTY
Craig heirs, Hamilton O. & G. Co. 6 .. gas

Wells completed 81
Production 432
Dry 13
Gas 34

LEWIS COUNTY
Rigs
Ward, Hope Gas Co. 1.
Wilson, Pgh. & W. Va. G. Co. 2.
Wells Drilling
Bond, White Oak O. & G. Co. 1.

HARRISON COUNTY
Rigs
Smith, W. Va. Central G. Co. 1.
Wells Drilling
Hinkle heirs, Gulf O. & G. Co. 1.
Stout, N. W. O. & G. Co. 1.
Sutton, Hope Gas Co. 1.
Lewis, Hope Gas Co. 1.
Smith heirs, Hope Gas Co. 1.

PRESTON COUNTY
Wells Drilling
Gordon, Hope Gas Co. 1.

MARION COUNTY
Rigs
Goodnight, Owens B. & M. Co. 1.
Ash-Fluharty, So. P. O. Co. 3.
Wells Drilling
Fleming, Davenport O. & G. Co. 1.
Morgan, Carnegie Gas Co. 2.
Cannon heirs, Martin O. & G. Co. 2.
Keefover, W. Va. Utilities Co. 1.
Michael, Owens B. & M. Co. 1.
Fleming heirs, Morgantown O. & G. Co. 1.
Rider, Hope Gas Co. 2.
Murray, Carnegie Gas Co. 3.
Metz, S. N. Elliott 1.
Rowand, R. S. Monroe & Co. 1.

MONONGALIA COUNTY
Rigs
Stattler, More-Tex O. & G. Co. 1.
Tennant, Clay District O. Co. 1.
Knuttle, Cummings & Thomas 1.
Wells Drilling
Tennant, So. P. O. Co. 5.
Varner heirs, Dunmar O. & G. Co. 17.
Cowell, Carnegie Gas Co. 1.

WETZEL AND TYLER COUNTIES
Rigs
Antill, Johns Gas Co. 5.
Booker, Hope C. & R. Co. 1.
Eddy, McIntyre Bros. & Co. 1.
Barteug, Mfrs. L. & H. Co. 3.
Hamilton, Carter Oil Co. 3.
Miller, Hope C. & R. Co. 1.
Wells Drilling
Little, John Gas Co. 2.
Orndoff, Littleton Gas Co. 1.
McIntyre, Hope C. & R. Co. 1.
Williams, Carter Oil Co. 1.
Wade, Silver Hill O. Co. 3.
Ingram, Hope C. & R. Co. 1.
Allen, Hope C. & R. Co. 1.
Everett-Ice, L. L. Gorrell 1.
McDiffitt heirs, Mfrs. L. & H. Co. 2.

MARSHALL COUNTY
Rigs
Rine, Mfrs. L. & H. Co. 2.
Mason heirs, Klugg Bros. & Co. 2.
Bonar, Decem Dev. Co. 2.
Riddle, Mfrs. L. & H. Co. 2.
Keller, Mfrs. L. & H. Co. 4.
Wells Drilling
Howard heirs, Mfrs. L. & H. Co. 2.
Strickland, Cameron L. & H. Co. 1.
McConehay, Mfrs. G. & E. Co. 1.
Riley heirs, G. P. Wasmuth & Co. 1.
McClaskey heirs, Waynesburg Gas Co. 1.

BROOKE COUNTY
Wells Drilling
Sanders, Pfister & Satterlee 2.

DODDRIDGE COUNTY
Rigs
Burbridge, W. D. Gribble 2.
Davis, G. B. Trainer 1.
Smith, Hope Gas Co. 2.
Perrine, Phila. Oil Co. 2.
Roberts, Keystone O. & G. Co. 4.
Hudson heirs, Continental O. & G. Co. 3.
Shinn, Roy Shinn 1.
Freeman, Clifton O. & G. Co. 3.
Wells Drilling
Williams, Hope C. & R. Co. 5.
Maxwell, Columbian Carbon Co. 54.
Smith, Carter Oil Co. 1.
Smith, Hope C. & R. Co. 2.

RITCHIE COUNTY
Rigs
Bird, Hope Gas Co. 1.
Davis, Hope Gas Co. 1.
Frederick, Beckerstaff & Co. 1.
Lemon, So. P. O. Co. 41.
Lambert, So. P. O. Co. 9.
W. Va. Tract, Whitewood Oil Co. 29.
Osborne, Hope Gas Co. 1.
Stanley, Hope C. & R. Co. 1.
Jordan, Hope C. & R. Co. 1.
Newbrough, Adams Oil Co. 5.
Wells Drilling
Bartlett, Hope Gas Co. 1.
Hall, Carter Oil Co. 1.
Black, Zinn & Broadwater 1.
Taylor heirs, Phila. Oil Co. 1.
Lemon heirs Tract, Southern Oil Co. 1.
W. Va. Tract, Cold Test Oil Co. 14.
W. Va. Tract, R. G. Wiles 5.
Howell, Moore & Co. 1.
Rector, J. F. Rector & Brother 2.
Jonas, Coss O. & G. Co. 3.
Haymond heirs, Premier Glass Co. 4.
Jones, Carnegie Gas Co. 1.
Markle, Carnegie Gas Co. 1.
Heflin, Pgh. & W. Va. G. Co. 1.
Hardbarger, J. E. Hardbarger 1.
Golden, Hope Gas Co. 1.
R. M. Tract, Cairo Oil Co. 19.
Wilson, Hope Gas Co. 1.
Flesher heirs, Hope Gas Co. 1.
Haught, Hope Gas Co. 1.
Rosson, Reno Oil Co. 2.
Cain, Hope C. & R. Co. 1.
Shahan, Nay & Kintzer 1.
Fox, E. E. Pope & Co. 2.

GILMER COUNTY
Rigs
Goff, So. P. O. Co. 8.
Hardman, So. P. O. Co. 6, 7.
Ellis, So. P. O. Co. 3.
Bush-Holt, Hope Gas Co. 2.
Richards, Chemical O. & G. Co. 1.
Bailey, H. Eddy 1.
Stalnaker, Pgh. & W. Va. G. Co. 1.
Osborne, Hope Gas Co. 1.
Wells Drilling
Ward, Hope Gas Co. 1.
Gainer, Hope C. & R. Co. 5.
Law, Pgh. & W. Va. G. Co. 1.
Frederick, Hope C. & R. Co. 1.
Ferrell, Hope C. & R. Co. 1.
Rothwell, G. L. Cabot 1.

BRAXTON COUNTY
Rigs
Bender, W. Va. Central G. Co. 2.
Bender 35 acres, W. Va. Central G. Co. 2.
Wells Drilling
Engle, W. Va. Central Gas Co. 1.
Bender 100 acres, W. Va. Central Gas Co. 2.
C. L. Engle, W. Va. Central Gas Co. 6.
Friend, W. Va. Central Gas Co. 3.
Hawkins, Pgh. & W. Va. G. Co. 1.
Bull, N. H. Cayton 1.
Long, Leroy O. & G. Co. 1.

WIRT COUNTY
Wells Drilling
Daubenspeck, A. F. Daubenspeck 3.
Swisher, Roberts Oil Co. 10.
Donohue, W. C. Patterson 17.

WOOD COUNTY
Rigs
McAtee, W. G. Decker 1.
Pope, E. E. Pope 2.
Musser, N. Y. Pet. Co. 10.
Wells Drilling
Stone, W. T. Stephens O. Co. 3.
Vincent, Rexroad & Rogers 1.
Bush, J. L. West & Co. 1.
West, Big Sand O. Co. 1.
Alleman, L. P. Bickel & Son 1.
Hebrick-Rap, Hines Peevy 2.

PLEASANTS COUNTY
Rigs
Newland, White & Casper 1.
Colvin, Colvin Farm O. Co. 1.
Wagner, Monongalia Oil Co. 8.
Pryor, H. Hall & Co. 1.
Wells Drilling
Wagner, Bottom Oil Co. 1.
Roberts Bros., G. F. Roberts 2.
Hammett estate, Hammett Oil Co. 1.
Cokley estate, Johnson Oil Co. 1.
White, F. D. Meister 16.
Hashman, Bailey Gas Co. 1.
McCullough, Stephens Oil Co. 2.
Darnell, Stephens Oil Co. 2.

ROANE COUNTY
Rigs
Larch, O. F. O. Co. 19.
Craig, So. P. O. Co. 19.
Borrough, Heck Oil Co. 1.
Wells Drilling
Meadows, W. P. Heeter 1.
Young, J. Richardson & Co. 1.

CALHOUN COUNTY
Rigs
Bell, Hope C. & R. Co. 2.
Thomas, T. Crowley Oil Co. 1.
Gerwig, McCall & Co. 2.
Stump, W. H. Bicle 1.
Godfrey, McIntosh & Miller 1.
Wells Drilling
Holbert, M. F. Crowley 1.
McCutty, Hope Gas Co. 1.
Stump, Hope Gas Co. 1.
Force, Carter Oil Co. 1.
Louden, Park & Daily 2.

JACKSON COUNTY
Wells Drilling
McCoy, Henderson Oil Co. 1.

CLAY COUNTY
Rigs
Goshorn Tract, Shelton G. & O. Co. 17.
Kink heirs, White Sand Pet. Co. 3.
Koontz, Empire Pet. Co. 2.

PUTNAM COUNTY
Wells Drilling
Wheeler, Henderson Dev. Co. 3.
Bays, Commercial Gas Co. 1.

LINCOLN COUNTY
Rigs
Adkins, Orlando O. & G. Co. 3.
Callahan, Columbia G. & E. Co. 1.
Wells Drilling
Adkins, Columbia Gas Co. 1.
C. Adkins, Ray Comas 1.
Osborne, Star O. & G. Co. 2.
Sweetland, L. R. Sweetland 1.
Cline, Columbia Gas Co. 1.
Mullins, Cambridge Gas Co. 1.

KANAWHA COUNTY
Rigs
Rollins, U. F. G. Co. 1.
Roane Land Co., Allegheny Oil Co. 2.
Imperial Coal Co., U. F. G. Co. 29.
Wells Drilling
Jarrett, U. F. G. Co. 1.
Canterberry, U. F. G. Co. 1.
England, U. F. G. Co. 1.
Witherell, United Fuel Gas Co. 1.
Vickers, Columbia Carbon Co. 2.
Black Bend Fuel Co., So. P. O. Co. 3.
Scott, Ohio Fuel Oil Co. 2.
G. K. L. & P. Co., Owens B. & M. Co. 19.
Quarrier, Owens B. & M. Co. 4.
Robson-Prichard, U. F. G. Co. 1.
Imperial Coal Co., U. F. G. Co. 30.
Williams Coal Co., Pure Oil Co. 199.

BOONE COUNTY
Rigs
Williams Coal Co., Pure Oil Co. 202.
Bull Creek C. & L. Co., Owens B. & M. Co. 1.
Coal River M. Co., Owens B. & M. Co. 4.
Cassingham, Owens B. & M. Co. 4.
Smoot, Owens B. & M. Co. 1.
Poor Farm, Owens B. & M. Co. 2.
Wells Drilling
L. R. & P. Tract, Pure Oil Co. 24.
L. R. & P. Tract B, Pure Oil Co. 14.
Coal River M. Co., Owens B. & M. Co. 22.
Pryor-Allen, Owens B. & M. Co. 8.
Perry, Owens B. & M. Co. 1.
Yawkey-Freeman, So. P. O. Co. 4.

CABELL COUNTY
Rigs
Birch, Walter Swan & Co. 1.
Wells Drilling
Blackwood, Harshbarger O. & G. Co. 1.
Alexander, Ohio F. S. Co. 1.
Templeton, C. O. Nixon & Co. 1.
Harshbarger, H. C. Zogg O. & G. Co. 1.
Vance, Midway City Gas Co. 2.
Scaub, Monacle Gas Co. 1.
Scaub, Commercial Gas Co. 1.

RALEIGH COUNTY
Rigs
Rowland Co., Fisher Oil Co. 4.

WAYNE COUNTY
Wells Drilling
Jackson, Chartiers Oil Co. 1.

MINGO COUNTY
Wells Drilling
Neighbert estate, Public Gas Corp. 3.
Logan C. Co., Public Gas Corp. 12.
Rigs, 80; wells drilling, 138; total, 218.

SOUTHEASTERN OHIO
Wells Completed
Camden, Devore O. & G. Co. 1..... dry
Mullenex, Carter Oil Co. 16..... gas
Scott, C. O. Wechbacher & Co. 2.... 2
Hershey Heirs, Henry Hershey 11..... dry
Dillon, Dillon Oil Co. 3..... 3

PERRY COUNTY
Donohue Heirs, Marshall & Marshall 26 3
Rarrick, Goble O. & G. Co. 6..... 10
Weaver, McVey Bros. & Co. 2..... 1

HOCKING COUNTY
Kitchen, Gordon Oil Co. 1..... 10
Stone, Carter Oil Co. 1..... dry
Martin-Adcock, Kelch Bros. 5..... dry
Hite, Graham & Co. 7..... gas
Hite, Graham & Co. 8..... gas

COSHOCTON COUNTY
Ashcraft, Pure Oil Co. 2..... 20

LICKING COUNTY
Cooperrider, Central Ohio Gas Co. 3... gas
Burgers, Flint Ridge O. & G. Co. 1... gas
Trout, Midland Oil Co. 1..... dry
Wildman, Mideast Oil Co. 1..... gas
Stewart, F. M. Riggs & Co. 1..... 1
McKinney, Jones & Reese 4..... 2
Bebout, Snyder & Parsons 19..... 2
Bebout, Snyder & Parsons 20..... 2
McClement, W. J. Berry 13..... 4
McCue, Marion Snyder 18..... 3
McCue, Marion Snyder 19..... 3
Smith, Ralph Bros. 2..... 4
Fair Grounds, Ohio F. S. Co. 1..... dry
Sommerville, Carter Oil Co. 2..... 40
Vanderbark, Carter Oil Co. 2..... 50
Bounds, Spindler & Donalson 9..... 4
Motherspaw, Saltzgaber & Son 6..... 3
Stevens, Moore & Adams 4..... 4
Smith, Pure Oil Co. 1..... 35
McMillan, Pure Oil Co. 3..... 3
Zartman, Wehrle Bros. 1..... dry
Taylor, Wehrle Bros. 6..... 3
Darnes, Wehrle Bros. 5..... 1
Smith, Wehrle Bros. 3..... 4
Watson, Wehrle Bros. 7..... dry

HOLMES COUNTY
Marquis, Pure Oil Co. 1..... 25
Shay, East Ohio Gas Co. 1..... gas
Bird, East Ohio Gas Co. 1..... gas
Barnes, Kilse & Co. 2..... gas
Barnes, Ohio F. S. Co. 2..... gas
Mackey, Burtner, Morgan & Co. 1.... gas
Gamble, East Ohio Gas Co. 1..... gas
Franks, Carter Oil Co. 2..... 50
Hall, Pure Oil Co. 3..... 3

GUERNSEY COUNTY
Rankin, Ohio F. S. Co. 1..... gas
Keith, Keith Bros. 1..... gas
Bainter, Leonard O. & G. Co. 1..... dry

MUSKINGUM COUNTY
Nethers, Pure Oil Co. 1..... dry

FAIRFIELD COUNTY
McCandlish, Blum O. & G. Co. 2..... 10
Johnston, Warrick & Nolder 10..... 5

MEIGS COUNTY
Cross, Brocalsa Chemical Co. 3..... 10
Ihle, E. G. Griffin & Co. 3..... 2
Cross, R. G. Gillespie 2..... gas
Whaley, W. I. Sperry, trustee 4..... 20
Lazerman, Meers, Nolan & Co. 1..... dry
Rodford, Gross & Co. 2..... 1
Murphy, Southern Oil Co. 1..... 1
Haizington, Rauch O. & G. Co. 1..... 1
Figley, Pure Oil Co. 1..... 1
Crosson, Townsend O. & G. 1..... gas

KNOX COUNTY
Howell, Ark. Fuel O. Co. 1..... 1
Dugan, Ark., Fuel O. Co. 8..... 1

MORGAN COUNTY
Weeden, J. D. Pearce 14..... 1
Edgerton, Metcalf & Co. 15..... 1
Bailey, Sun Oil Co. 4..... 1
Bailey, Sun Oil Co. 3..... 1
Souders, Sun Oil Co. 1..... 1
Epply, Pure Oil Co. 3..... 1
Smith, Pure Oil Co. 1..... 1

NOBLE COUNTY
Sherbourne, W. O. James 3..... dry
Westcott, Stephens & Co. 1..... dry
McWilliams, J. Kemp & Co. 3..... 1
Keizer, Hendershot & Co. 3..... 1
Lyons, Pure Oil Co. 1..... dry
Spratt Heirs, Pure Oil Co. 2..... dry
Williams, Voorhees & Co. 6..... dry

WASHINGTON COUNTY
Smith, First N. B. of Lowell 63..... dry
Smith, First N. B. of Lowell 62..... dry
Howell, W. S. Lauffer & Co. 26..... gas
Thebold, McIntyre & Co. 19..... 1
Wagner, Flack & Co. 1..... 1
Thebold, W. F. Meister & Co. 21..... 1

JEFFERSON COUNTY
Williams, Mills Heirs 1..... dry
Hunter Heirs, Thompson & Co. 1..... dry

COLUMBIANA COUNTY
Yaggi Heirs, Kirk-Dunn Oil Co. 11.... 1
Yaggi Heirs, Kirk-Dunn Oil Co. 10.... 1

Wells completed 94
Production 425
Dry 10
Gas 11

MONROE COUNTY
Rigs
McCauslin, Carter Oil Co. 2.
Wells Drilling
Piatt, Bode & Co. 1.
English, Carter Oil Co. 1.
Hall, Simmons & Co. 2.
Hartshorn, Berea Oil Co. 2.
Haught, Thonberry & Lucas 1.
Cox, T. L. Cobert & Co. 4.

PERRY COUNTY
Rigs
Paxton, Holliday O. & G. Co. 3.
Welch, Southern Oil Co. 2.
Wells Drilling
S. C. C. Co., John Denman & Son 45.
S. C. C. Co., O'Conner & Keller 17.
Calkins, Calkins O. & G. Co. 4.
Brelsford, Allegheny Oil Co. 9.
Sunday Creek C. C. Co., Sunday Creek Coal Co. 120.
Sunday Creek Coal Co., Sunday Creek Coal Co. 121.
Akers Heirs, Murray City O. & G. Co. 6.

HOCKING COUNTY
Rigs
Ford, Gordon Oil Co. 5.
Johnston, Griffin Prod. Co. 6.
Wells Drilling
H. V. P. Co., Chartiers Oil Co. 191, 192.
Tracey estate, Kachelmacher estate 14.
Cramblit, Preston Oil Co. 1.

COSHOCTON COUNTY
Rigs
Wolfors, Spindler, Donlan & Co. 4.
McKee, Spindler, Donlan & Co. 4.
Moore, Carter Oil Co. 1.
Ashcraft, Pure Oil Co. 3.

LICKING COUNTY
Rigs
Bell, Carter Oil Co. 1.
Wilkins, Atha Oil Co. 1.
Wells Drilling
Swinehart, Central Ohio Gas Co. 1.
Mercer, Carter Oil Co. 1.
Moore, Atha Oil Co. 1.
Irvin, Tague Oil Co. 1.
Weiss, Riggs & Co. 2.
McKinney, Jones & Reese 5.
Stair, E. J. Edmons & Co. 2.
Patton, E. H. Everett & Co. 1.
Rector, Ohio F. S. Co. 1.
Gutridge, Bishop & Patton 2.
Stephens, Moore & Adams 5.
Darnes, W. W. & A. T. Wehrle 13.
Harris, W. W. & A. T. Wehrle 2.

HOLMES COUNTY
Rigs
Jackson, Carter Oil Co. 1.
Church lot, East Ohio Gas Co. 1.
Finney, Central Ohio Gas Co. 1.
Smith, Central Ohio Gas 1, 2.
Uhl, Ohio F. G. Co. 2.
J. Uhl, East Ohio Gas Co. 3, 4.
Sterling, East Ohio Gas Co. 2.
Mast, Logan Gas Co.
Carpenter, Pure Oil Co. 3.
Wells Drilling
Kendall, East Ohio Gas Co. 1.
Lowe, East Ohio Gas Co. 2.
Allison, Central Ohio Gas Co. 1.
Leppla, Central Ohio Gas Co. 1.
Davenport, Central Ohio Gas Co. 1.
S. Allison, Central Ohio Gas Co. 1.
Korns, Central Ohio Gas Co. 2.
Bell, Central Ohio Gas Co. 2.
Barnes-Ohio F. G. Co. 1.
Uhl, Ohio F. G. Co. 1.
Korns, Ohio F. G. Co. 2.
Sterling, East Ohio Gas Co. 1.
Mast, Logan Gas Co. 9.

GUERNSEY COUNTY
Rigs
Snell, Ohio Fuel Supply Co. 1.
Williams, Ohio Fuel Supply Co. 1.
Wells Drilling
Worthing, Ohio F. S. Co. 1.
Abbott, Ohio F. S. Co. 1.
Cornelius, Ohio F. S. Co. 1.

FAIRFIELD COUNTY
Wells Drilling
Everett, Nypenno O. Co. 1.
Graffis heirs, Ruff-Stewart O. Co. 1.
Dittoe, Planet Oil Co. 2.
Morrow, Sturm & Co. 1.
Combs, Pachard O. & G. Co. 1.
Smith, Pure Oil Co. 1.

MEIGS COUNTY
Wells Drilling
Raush, C. W. Eagler 1.
Spencer, Pure Oil Co. 1.
Crew, Ohio F. S. Co. 1.

Holter, Jupiter Oil Co. 3.
Raush, Big Four Prod. Co. 1.

ATHENS COUNTY
Wells County

Whaley, W. J. Sperry, trustee 5.
Braley, Edmonson & Co. 1.
Rodford, Gross & Co. 3.
Murphy, Southern Oil Co. 2.
Wolfrum, Home Oil Co. 1.
Hazington, Rauch O. & G. Co. 2.
Earhart, Watkins O. & G. Co. 1.
McClain, Jones & Carpenter 1.

KNOX COUNTY
Rigs

Crawford, Pure Oil Co. 7.
Vestch, W. M. Kline & Co. 3.

Wells Drilling

Seward, Pure Oil Co. 2.
Schaler, East Ohio R. & P. Co. 5.

MORGAN COUNTY
Rigs

Swytser, Sun Oil Co. 5.
Finley, Carter Oil Co. 2.
Dutro, Carter Oil Co. 2.

Wells Drilling

Edgerton, Metcalf & Co. 16.
Bailey, Sun Oil Co. 5, 6.
Epply, Pure Oil Co. 2.
Fye, Pure Oil Co. 2, 2.
Smith, Pure Oil Co. 2.

NOBLE COUNTY
Rigs

Shaffer, Robinson & Metcalf 2.

Wells Drilling

Walters, Wash.-Noble O. & G. Co. 8.
Coal Lands, O. O. Kinsey & Co. 4.
Bell, W. B. Mosley 3.
Whealdon, E. E. King & Co. 1.
McWilliams, John Kemp & Co. 2.
Moreland, H. H. Moseley & Co. 3.
Murray, Harper & Co. 1.
Heddleson, E. J. Metcalf & Co. 6.

WASHINGTON COUNTY
Rigs

Marshall, First National Bank 32.
Amos, Herman Hill & Co. 2.
Barth, Otto Becker & Co. 1.
Thornly, V. Hammond 2.
Wallace-Wagner, C. B. Lutton & Co. 3.
Schramm, Hope Oil Co. 2.
Reed, E. H. West & Co. 2.
Chute heirs, Red Top Oil Co. 5.

Wells Drilling

Schenkle, Graham Oil Co. 2.
Heslett, Beeson Bailey & Co. 6.
Dauber, L. O. Dauber & Co. 10.
Sunday Creek C. C., Sunday Creek C. Co. 122.
Hamilton, P. B. & T. Co. 1.
Haas, Reynolds & Co. 4.
Devol Bros., J. Ryan & Co. 2.
Wagner, G. H. Wagner & Co. 3.
Hadley, Crescent Prod. Co. 8.
Troutner, Earl Stephens 2.
Wensel, J. Rothley & Co. 3.
Gross, Waxler Metcalf 6.
Berg, S. Clawson 2.
Dana, O. S. Reckard 5.

JEFFERSON COUNTY
Wells Drilling

Groves, Boyce & Boyce 1.

BELMONT COUNTY
Wells Drilling

Henderson, Dysart-Mitchell O. & G. Co. 3.

CARROLL COUNTY
Wells Drilling

Davis, Amsterdam Parties 1.
Rigs, 38; wells drilling, 100; total, 138.

LIMA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wood	17	154	0	1	3	13	16
Hancock	3	0	2	1	0	7	7
Allen	4	33	0	1	0	3	3
Auglaize	6	160	0	0	0	5	5
Sandusky	1	0	0	0	0	1	1
Mercer	13	154	2	0	0	9	9
Van Wert	2	25	0	0	0	5	5
Lucas	0	0	0	0	0	1	1
Ottawa	5	46	0	0	0	2	2
Darke	1	5	0	0	0	0	0
Shelby	1	35	0	0	0	6	6
Paulding	5	70	1	1	0	7	7
Hardin	4	50	1	1	0	1	1
Crawford	0	0	0	0	0	2	2
Michigan	0	0	0	0	0	2	2
Total Oct.	62	737	6	5	3	64	67
Total Sept.	46	658	4	1	9	63	72
Difference	16	79	2	4	6	1	5

WOOD COUNTY
Wells Completed

Plain—Pinert-Munn, Paragon Ref. 26 5
Harriett Green, Barclay Perry 1 10
F. & H. Burkhalter, Barclay Perry 2 5
Rockwood, E. C. Rockwood 11 2
Portage—Jos. Trapnell, Ohio Oil 74 5
M. D. Coffinberry, Paragon Ref. 1, 7 abd
C. L. Sine, Wayne Oil 6 abd
Bloom—N. W. Nat. Gas, Ohio Oil 48 50
Liberty—Marion Wiseley, W. S. Raydure 1 5
D. W. Livers, Hulse & Koontz 1 10
C. T. Lee, Schiedt, Hammon & Huston 2 2
D. M. Roberts, Huffman & Haas 6 abd
Ettie Avery, Avery Oil 3 abd
Middleton—Henry Apel, R. R. Lynch 4 2
Ed. Young, Keiser, Brown & Co. 3
Ed. Young, Keiser, Brown & Co. 6 2
Ed. Young, Keiser, Brown & Co. 7 15
Henry Bahnson, R. G. Bowe & Co. 3 15
Perrysburg—J. P. Birkin, J. P. Birkin 3 15
Melvin Speck, Malvern Good 3 5
Perry—C. J. Bressler, Dennis Bros. 3 gas

Wells completed 17
Production 154
Gas
Abandoned 1
5

HANCOCK COUNTY

Liberty—Fee, Findlay Bible School 1 gas
Biglick—Sarah J. King, King & Fletcher 1 dry

Wells completed dry
Dry 3
Gas 2
1

ALLEN COUNTY

Amanda—Sam Keith, W. L. Parmenter 3 abd
Spencer—Anna Youngpeter, W. W. Rooks & Co. 1 10
Newton Fryer, The New Gas Co. 1 gas
Bath—E. W. Prewant, C. A. Peavey & Co. 7 5
H. L. Solomon, Carman, Bodkins & Co. 2 18
Dan A. Bresler, Frederick Roeder, Jr. 4 abd

Wells completed 4
Production 33
Gas 1
Abandoned 2

AUGLAIZE COUNTY

Moulton—C. R. Julian, R. E. White 1 100
G. R. Julian, J. R. Kelley 2 5
J. W. Myers, Young & Geseichen 3 25
Alvin Myers, Young & Geseichen 1 15
Logan—Phil Ramage, E. L. Kirk & Co. 2 10
Noble—Francis J. Roby, Chas. Mertz 7 5
Pools Heirs, Ohio Oil 4, 5, 7 abd

Wells completed 6
Production 160
Abandoned 3

SANDUSKY COUNTY

Woodville—G. Spayde, Ohio Oil 19 5
J. H. Wilkey, Paragon Ref. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13 abd
S. Myerholtz, Paragon Ref. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 abd
H. F. Clausing, Paragon Ref. Co. 4, 6, 7 abd
E. Schmoldt, Paragon Ref. Co. 2, 3, 4, 5, 6 abd
Scott—J. H. Lehman, Paragon Ref. 1 abd
G. F. Zimmerman, Paragon Ref. Co. 1 abd
H. H. Michael, Paragon Ref. 5, 6, 7 abd
Louisa Kiser, Paragon Ref. 1, 2, 3 abd
J. W. Zimmerman, Paragon Ref. Co. 1, 2 abd
R. Zimmerman, Paragon Ref. Co. 3 abd
D. Shoe, Paragon Ref. Co. 1, 2, 3 abd
J. M. Sherman No. 2, J. M. Sherman & Co. 12, 13 abd
Kline & Ernst, Oden Oil 1 abd
Sandusky—Thos. J. Taylor, Paragon Ref. Co. 1, 2, 3, 4 abd
Jackson—W. O. Dell, Paragon Ref. Co. 1, 2 abd
H. Byers, Paragon Ref. Co. 1, 2, 3, 4, 6, 10 abd
Rice—D. Cornicomb, Walters & Simpson 1 abd
Michael Wolfe, Walters & Simpson 1 abd

Wells completed 1
Production 5
Abandoned 66

MERCER COUNTY

Gibson—Jos. Schmidt, E. G. & J. Henderson 2 15
J. P. Schmidt, Central West O. & G. 4 25
Liberty—Jac. Bollenbacher, Beatty & Hays 2 5
Jac. Ballenbacher, Beatty & Hays 3 10
Peter Alt, O. C. Fink 1 20
Granville—W. Post, Shirill & Co. 1 2
Union—S. E. Miller, Watson Oil 6 abd
C. Griffin, Watson Oil 3 abd
Mary Hattery, Watson Oil 6 abd
Butler—A. Able, Deffenbaugh & Co. 4 5
A. Able, Gillespie & Co. 1 dry
J. Haubert, Lacknett & Co. 1 dry
Hopewell—E. Siler, E. A. Kuhns & Co. 5 15
C. C. Rickets, E. A. Kuhns & Co. 2 50
C. C. Rickets, E. A. Kuhns & Co. 1 abd
C. F. Brown, Callahan & Mayhugh 1 abd
S. Fetter, J. A. Metzger 1 2
G. F. Hellsworth, Home Banking 3 5
Center—J. Didrick, E. A. Kuhns & Co. 3 abd

Wells completed 13
Production 154
Dry 2
Abandoned 6

VAN WERT COUNTY

Jennings—Amos Burnett, Stanley Oil 1 abd
Ridge—Florence E. Prill, The Senate Oil 4 5
York—E. R. Jones, W. H. Young & Co. 2 20

Wells completed 2
Production 25
Abandoned 1

LUCAS COUNTY

Oregon—J. H. Driftmyer, Paragon Ref. 2, 3, 4, 5 abd

OTTAWA COUNTY

Harris—E. W. Yeasting, Zorn-Hornung Oil 11 11
A. J. Wies, River Oil 2 7
Clay—F. W. Redman, R. M. Bell 8 5
W. E. Stewart, Gust Magsig & Son 2 14
Rose Reynolds, Reynolds Oil 1 9

Wells completed 5
Production 46

DARKE COUNTY

Mississinewa—A. Cox, E. G. Huffman 1 5

SHELBY COUNTY

Van Buren—L. Ruesse, Wm. Morgan 2 35

PAULDING COUNTY

Harrison, Thomas Lamb, Aetna Oil 2 30
J. A. Amspaugh, H. B. Odenkirk 1 dry
Benton—Wm. Wood, Robinson & Mandell 1 gas
W. D. Ryal, W. C. H. Oil & Gas 2 25
Brown—E. E. Johnson, Roger L. Dill & Co. 1 15

Wells completed 5
Production 70
Dry 1
Gas 1
Gas production 1,890,860

HARDIN COUNTY

McDonel—Melissa Greentree, Cockley Oil 2 30
Chas. Steverson, Roundhead O. & G. 1 20
J. T. Bowdle, Schmidt & Holmes 1 gas
Roundhead—John Shields, Whipple, Ulrich & Co. 1 dry

Wells completed 4
Production 50
Dry 1
Gas 1
Gas production 1,000,000

WOOD COUNTY
Rigs

Liberty—D. W. Levers, Hulse & Koontz 2.
Perrysburg—D. Lahy, W. F. Johnson 7.
O. P. Spiker, Davis & Carroll 3.

Wells Drilling

Freedom—Bryant Brockover, J. E. Matzinger 6.
Plain—R. N. Green, Virginia Perry 1.
Bloom—F. B. Loose, Western Ohio Oil 3.
Browning, Clark A. Browning 20.
M. L. Donahey, Breener Oil 24.
Liberty—Sam Croker, Ray Oil 10.
Henry—A. Chidester, Agnetta D. Chidester 13.
Middleton—F. H. Speck, Fred H. Speck 4.
Lake—Emil Brendt, Chas. F. Zeising & Co. 3.
Gideon Laplant, John Patton & Co. 1.
Henry Schulte, Lants, Gregg & Schulty 6.
Ed. Young, Keiser, Brown & Co. 8.
Troy—Anna Hartman, Modern Oil 1.
Rigs, 3; wells drilling, 13; total, 16.

HANCOCK COUNTY
Wells Drilling

Portage—B. Twining, Verschilitz Oil 1.
Pleasants—Annan Heney, Bath Township Oil 3.
Liberty—A. P. Ryal, Kirk & Bower 1.
Eagle—S. McClelland, S. Porter & Co. 2.
Isaac Foltz, Star & Clark 9.
Biglick—James Cross, Cole Bros. 1.
M. E. James, Ohio Oil 1.
Rigs, 0; wells drilling, 7; total, 7.

ALLEN COUNTY
Wells Drilling

Spencer—Ann Youngpeter, W. W. Rocks 2.
Mary E. Gross, South Fork Oil 3.
Bath—Clias Lewis, C. A. Peavey & Co. 1.
Rigs, 0; wells drilling, 3; total, 3.

AUGLAIZE COUNTY
Wells Drilling

Moulton—G. R. Julian, E. E. White 2.
A. E. Long, W. B. Jack 1.
John Tester, Cliff Blair & Co. 1.
J. Rapp, Neely-Clover Oil 1.
W. E. Cook, Young & Geseichen 3.
Rigs, 0; wells drilling, 5; total, 5.

SANDUSKY COUNTY
Wells Drilling

Woodville—Chas. Busdiecker, R. E. Hermen 1.

MERCER COUNTY
Wells Drilling

Gibson—Jos. Schundtz, E. G. & J. Henderson 3.
L. Rummell, Delta Oil 2.
A. Miller, Delta Oil 1.
H. Lechner, Pittsburgh Oil 1.
Recovery—B. Dues, Pennhoma Oil 1.
Butler—John Dues, R. E. Young 1.
H. Pummell, O. J. McGuigan & Co. 1.
J. W. Burnett, Deffenbaugh & Co. 1.
Hopewell—S. Fetters, J. A. Metzger 2.
Rigs, 0; wells drilling, 9; total, 9.

VAN WERT COUNTY
Wells Drilling

Jennings—W. C. Shiley, Stanley Oil 3.
Ridge—J. E. Moore, Calvin Neely 2.
Harrison—S. E. German, Bolyard, Barnett & Co. 3.
Pleasants—M. H. Hofman, American Engineering 2.
York—A. J. Haigh, W. H. Young 2.
Rigs, 0; wells drilling, 5; total, 5.

LUCAS COUNTY
Wells Drilling

Monclova—Wm. Black, Swan Creek O. & G. 2.

OTTAWA COUNTY
Wells Drilling

Harris—E. W. Yeasting, Zorn-Hornung Co. 12.
Luckey, O. L. Luckey 4.
Rigs, 0; wells drilling, 2; total, 2.

SHELBY COUNTY
Wells Drilling

Cynthian—A. Ellerman, Ellerman Oil 4.
S. Swartz, Ohio Oil 1.
J. A. Moyer, McClure & Marshall 1.
J. Helscher, Schlagel & Johnson 1.
Laramie—H. Pauls, O. J. McGuigan & Co. 1.
Turtle—Wagner, McClure & Marshall 1.
Rigs, 0; wells drilling, 6; total, 6.

PAULDING COUNTY
Wells Drilling

Harrison—Thomas Lamb, Aetna Oil 3.
Benton—Alonzo Thompson, W. J. Wharton & Co. 1.
John D. Lamb, W. J. Wharton & Co. 1.
Jac. Stahler, Harmon & Co. 1.
O. L. & E. A. Lentz, D. N. Lipps 1.
Paulding—Gil Barnes Estate, Blackburn Bros. 1.
W. D. Graham, W. E. Hawk & Co. 1.
Rigs, 0; wells drilling, 7; total, 7.

HARDIN COUNTY
Wells Drilling

Marion—J. Hinebaugh, McGuffey O. & G. 1.

CRAWFORD COUNTY
Wells Drilling

Galion—Town Lot, Weed-Hamilton Oil 1.
Texas—Charles Oder, The Sun Co. 1.
Rigs, 0; wells drilling, 2; total, 2.

MICHIGAN

MONROE COUNTY
Wells Drilling

Dundee—Frank Roe, Jackson County Oil & Gas 1.

JACKSON COUNTY
Wells Drilling

Napoleon—Silvers, Jackson County O. & G. 1.

INDIANA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wells	0	0	0	0	1	1	
Jay	1	80	0	0	0	4	4
Adams	0	0	0	0	0	1	1
Grant	0	0	0	0	0	2	2
Delaware	0	0	0	0	1	0	1
Gibson	2	78	0	0	0	6	6
Pike	1	12	0	0	0	2	2
Sullivan	3	20	1	1	0	0	0
Knox	1	0	1	0	0	0	0
Harrison	0	0	0	0	0	1	1
Laporte	1	0	1	0	0	0	0
Hendricks	0	0	0	0	0	1	1
Total Oct.	9	190	3	1	1	18	19
Total Sept.	11	137	4	1	1	22	23
Difference	2	53	1	0	0	4	4

JAY COUNTY
Wells Completed

Redkey—A. N. Wilson, Whittinhill & Mc-Pherson 1 80

GIBSON COUNTY
Wells Completed

Washington—C. Hightouer, Ohio Oil 2 abd
Center—O. M. Welborn, Mann, Huber & Ticheour 2 30
H. Burnett, J. H. Young & Co. 3 48

Wells completed 3
Production 78
Abandoned 1

PIKE COUNTY

Logan—Enos Loveless, Good Luck Oil 4 12

SULLIVAN COUNTY

Hamilton—F. C. Springer, Fred Bays 1 gas
R. Drake, Manfield & Co. 1 dry
Turman—Nancy A. Denney, V. S. Welch 7 20

Wells completed 3
Production 20
Dry 1
Gas 1

KNOX COUNTY

Harrison—Lulu Proctor, P. C. Andrews & Co. 1 dry

LA PORTE COUNTY

Dewey—R. W. Keller, Aetna Drilling 1 dry

WELLS COUNTY
Wells Drilling

Liberty—J. K. Davis, Lewis Oil Corp. 10.

JAY COUNTY
Wells Drilling

Pike—M. Mott, Omar O. & G. 10.
Penn—C. C. Harris, American Engineering 2.
L. D. Edmundson, American Engineering 1.
Bear Creek—Jas. Jeffries, Mesel & Spencer 2.
Rigs, 0; wells drilling, 4; total, 4.

ADAMS COUNTY
Wells Drilling

Hartford—M. L. Sours, Mason & Co. 2.

GRANT COUNTY
Wells Drilling

Pleasants—Wm. Troyer, Scott & Shesler 2.
Jefferson—A. D. Mittank, Jacob Wides 1.
Rigs, 0; wells drilling, 2; total, 2.

DELAWARE COUNTY
Rigs

Delaware—J. W. Goings, De Soto O. Synd. 9.

GIBSON COUNTY
Wells Drilling

Washington—Ira Seifers, Lynch & Co. 1.
Union—Thos. Compton, J. H. Young & Co. 1.
Center—Sam Massey, Murphy Oil 1.
John Wirtz, Gray & Co. 3.
W. Steiner, Tichenour & Edmonds 2.
Barton—H. Raiborn, Nelson Bros. 1.
Rigs, 0; wells drilling, 6; total, 6.

PIKE COUNTY
Wells Drilling

Lockhart—O. Bowermeister, J. H. Sullivan 1.
Logan—D. S. Huey, Noble-Bolyard Oil 9.
Rigs, 0; wells drilling, 2; total, 2.

HARRISON COUNTY
Wells Drilling

Corydon—John Blake, Railroader Oil 2.

HENDRICKS COUNTY
Wells Drilling

Clay—W. E. Christy, Amo Oil 1.

ILLINOIS FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Clark	8	137	3	0	0	4	4
Cumberland	0	0	0	0	0	2	2
Crawford	1	5	0	0	0	2	2
Lawrence	2	5	0	0	0	3	3
Marion	0	0	0	0	0	1	1
Wabash	9	400	6	0	5	7	12
Douglas	0	0	0	0	0	1	1
Coles	0	0	0	0	0	1	1
Union	0	0	0	0	0	1	1
Fayette	0	0	0	0	1	0	1
Madison	1	0	1	0	0	0	0
Jasper	0	0	0	0	0	1	1
Total Oct.	21	597	10	0	6	23	29
Total Sep.	21	588	6	0	5	27	32
Difference	0	9	4	0	1	4	3

CLARK COUNTY
Wells Completed

Parker—H. E. Echard, Gillette & Co. 1 dry
H. E. Echard, Gillette & Co. 3 2
Casey—R. E. Stratton, Chrysler & Co. 1 dry
Chas. Lowe, R. G. Holmes & Co. 2 20
Johnson—T. Bonnett, Thos. Stewart & Co. 9 dry
Martinsville—S. M. Brosman, Ohio Oil 14 30
Nettie Baker, W. C. McBride, Inc. 3 60
Mary J. McClelland, Titus Oil 2 25

Wells completed 8
Production 137
Dry 3

CRAWFORD COUNTY

Honey Creek—Chas. J. Weger, Craig, Lowrie & Co. 16 5

LAWRENCE COUNTY

Lawrence—N. M. Rogers, Silurian Oil 13 12
Bridgeport—W. H. Rogers, Ohio Oil 21 42
A. J. Combs, Ohio Oil 11 abd
Petty—A. A. Eaton, Ohio Oil 2 abd
E. L. Gray, Ohio Oil 6 abd
Clint Thorn, Ohio Oil 9 abd

Wells completed 2
Production 55
Abandoned 4

MARION COUNTY

Sandoval—A. E. Benoist, Southwestern O. & G. 9 abd

WABASH COUNTY

Wabash—V. P. Compton, Henley & Co. 1 dry
Ed Wright, Gray & Co. 1 dry
A. R. Biehl, Coon Creek Oil 3 180
H. W. Winter, Whiteside, Phipps & Blosser 1 200
Clara Adams, Wirebaugh & Ballard 1 20
Joe Buchanan, Dewees, Smith & Co. 1 dry
Jas. Stillwell, McColpin, Sargent & Co. 1 dry
John Leek, Young & Co. 4 dry

Clara Armstrong, W. M. Price & Co. 1 ..... dry

Wells completed 9
Production 400
Dry 6

MADISON COUNTY

Leef—August Weder, Ohio Oil 1..... dry

CLARK COUNTY
Wells Drilling

Casey—John Leignor, Boyd, Eaton & Co. 1.
Chas. Lowe, R. G. Holmes & Co. 3.
Wm. Reisinger, Gillette & Co. 1.
Martinsville—A. W. Covalt, Ohio Oil 3.
Rigs, 0; wells drilling, 4; total, 4.

CUMBERLAND COUNTY
Wells Drilling

Sumpter—Dobbs-Brewer, Central Illinois Pet. 1.
Neoga—F. Granchen, C. Karnes 1.
Rigs, 0; wells drilling, 2; total, 2.

CRAWFORD COUNTY
Wells Drilling

Oblong—Ed. Henry, Dinsmore Oil 3.
Martin—D. C. Brubaker, W. W. Splane 9.
Rigs, 0; wells drilling, 2; total, 2.

LAWRENCE COUNTY
Wells Drilling

Lawrence—G. L. Dunlap, Samuels, Duffield & Co. 10.
Dennison—Harriett Leighty, S. J. See, Sr. 13.
H. A. Seed, Curtis & Co. 1.
Rigs, 0; wells drilling, 3; total, 3.

MARION COUNTY
Wells Drilling

Sandoval—A. E. Benoist, Fox, Alsbach Oil Corp. 1.

WABASH COUNTY
Rigs

Wabash—W. G. Armstrong, J. S. Young & Co. 1.
Frank Smith, Arkansas Fuel, Hartman & Parrott 1.
H. W. Winter, Whiteside, Phipps & Bolsser 3, 4, 5.
Wells Drilling
Wabash—H. W. Winter, Whiteside, Phipps & Blosser 2.
C. E. Courter, Whiteside, Phipps & Blosser 1.
L. Chapman, Whiteside, Phipps & Blosser 1.
Van Wright, Midland Oil 1.
Holson-Dorney, Max Oil 2.
Courter, Hartman, Parrot & Young 1.
Friendsville—Matheney, Arkansas Fuel, Hartman & Parrott 1.
Rigs, 5; wells drilling, 7; total, 12.

DOUGLAS COUNTY
Wells Drilling

Sargent—W. E. Brown, Douglas Oil 1.

COLES COUNTY
Wells Drilling

Hutton—Wm. Roach, Colegrove & Co. 18.

UNION COUNTY
Wells Drilling

Bald Knob—Near Alta Pass, W. MacSmith 1.

FAYETTE COUNTY
Rigs

Pope—John Baxter, McCurdy & Co. 1.

JASPER COUNTY
Wells Drilling

N. Cunningham, George Fanvers 1.

CENTRAL OHIO

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Ashland	3	0	0	3	0	11	11
Medina	5	0	3	2	4	11	15
Lorain	2	0	0	2	1	2	3
Wayne	7	0	4	3	3	19	22
Richland	0	0	0	0	0	2	2
Hocking	3	0	2	1	1	3	4
Vinton	0	0	0	0	0	1	1
Holmes	7	110	0	5	7	18	25
Coshocton	1	0	0	1	1	2	3
Jackson	2	0	0	2	3	5	8
Athens	13	0	5	8	2	4	6
Meigs	0	0	0	0	2	1	3
Cuyahoga	1	0	0	1	0	0	0
Summitt	0	9	0	0	0	1	1
Total Oct.	44	110	14	28	24	80	104
Total Sept.	55	151	16	31	40	96	136
Difference	11	41	2	3	16	16	32

ASHLAND COUNTY
Wells Completed

Hanover—Howard Bockman, Logan Gas 1 ..... gas
Fred Feitcher, Logan Gas 3..... gas
Orange—Jacob Snyder, Logan Gas 1.... gas

Wells completed 3
Gas 3
Production 0

MEDINA COUNTY

Harrisville—Angie E. Daniels, Ohio Fuel Gas 1 ..... gas
Litchfield—Geo. Kennedy, Logan Gas 1 gas
York—G. F. Gunkleman, Logan Gas 2 dry
W. C. Strittmater, East Ohio Gas 1.. dry
Brunswick—D. T. Tillotson, Central Ohio Gas 1..... dry

Wells completed 5
Dry 3
Gas 2

LORAIN COUNTY

Grafton—Fred Kinest, Logan Gas 1.. gas
Columbia—G. & J. Herold, Wiser Oil 1 gas

Wells completed..... 2
Gas 2
Production 0

HOCKING COUNTY

Benton—V. D. Barclay, Ohio Fuel Gas 1 dry
John Vorhees, Ohio Fuel Gas 1..... gas
Minnie Allen, Logan Gas 1 ..... dry

Wells completed 3
Dry 2
Gas 1

WAYNE COUNTY

Wayne—Chas. Pressler, Ohio Fuel Gas 2 dry
J. Wasson, Ohio Fuel Gas 1..... dry
M. V. Caskey, Logan Gas 1..... dry
Cannan—J. W. Scholl, Logan Gas 2... gas
L. & G. Rahill, Hulse & Koontz 2... dry
Daniel Wiles, Butler Brothers 2..... gas
J. M. Wiles, Creston Gas 2..... gas

Wells completed 7
Dry 4
Production 0
Gas 1

HOLMES COUNTY

Monroe—Chas. Barnes, Ohio Fuel Gas 2 gas
Chas. Shank, East Ohio Gas 1..... gas
M. B. Bird, East Ohio Gas 1..... gas
A. R. Mackey, Burton-Morgan-Stephens 1 ..... gas
Charles Barnes, Klise-Eckstein-McCann 2 ..... gas
Prairie—Marquis, Pure Oil 1..... 35
Hardy—Melissa Gambler, East Ohio Gas 1..... 75

Wells completed 7
Production 110
Gas 5

COSHOCTON COUNTY

Newcastle—W. Ringwalt, Logan Gas 2 gas

JACKSON COUNTY

Lick—Guy Smales, Ohio Fuel Supply 1 gas
Washington—Nellie Wilson, Ohio Fuel Gas 2 ..... gas

Wells completed 2
Production 0
Gas 2
Dry 0

ATHENS COUNTY

Carthage—Arthur Cole, Logan Gas 5.. gas
J. W. Kincaid, Logan Gas 2..... dry
M. Kinnon, Logan Gas 2..... gas
Dana T. Burns, Ohio Fuel Supply 1 gas
Chas. Day, Ohio Fuel Supply 1..... dry
Troy—C. H. Ford, Ohio Fuel Supply 1 dry
Fritz Ahrendt, McBride & Co. 1..... gas
Rome—A. McGraw, Logan Gas 1..... gas
T. McGraw, Pittsburgh Gas 1..... dry
J. C. Prent, H. W. Leeper & Co. 1.. gas
G. S. Parken, Stephens & Yowman 2 dry
Waterloo—S. J. Lowery, Logan Gas 1.. gas
Cannon—Ed. Halbert, Immel Bros. 1.... gas

Wells completed..... 13
Production 0
Gas 8
Dry 5

CUYAHOGA COUNTY

Strongville—C. W. Stelzer, East Ohio Gas 1..... gas

ASHLAND COUNTY
Wells Drilling

Hanover—Geo. Carnagey, Logan Gas 3.
Perry Black, Logan Gas 2.
Emanuel Kick, East Ohio Gas 2.
Vermillion—Clara Endinger, W. E. Hawk 1.
Orange—Wm. Monteith, Logan Gas 7.
J. P. Calhoun, Logan Gas 1.
J. J. Brown, Logan Gas 1.
Dora Richards, Logan Gas 1.
Greene—Lewis Beck, Logan Gas 1.
Clara McMillan, Logan Gas 1.
Madison Teeters, Ohio Fuel Gas 1.
Rigs, 0; wells drilling, 11; total, 11.

MEDINA COUNTY
Rigs

Harrisville—J. E. E. Zimmerman, Logan Gas 1.
J. Wissler, Logan Gas 1.
Lafayette—Mary McCleary, Logan Gas 1.
York—E. M. Brinstall, Logan Gas 2.
Wells Drilling
Harrisville—Henry Garmen, Ohio Fuel Gas 1.
Litchfield—Frank Cinco, Hulse & Koontz 5.
Frank Burrer, East Ohio Gas 1.
Wm. Schultz, Logan Gas 1.
Westfield—T. J. Logandorf, Logan Gas 1.
Lafayette—Medina Infirmary, Logan Gas 4.
Hipolite Karas, Ohio Fuel Gas 1.
Montville—G. W. Roshon, Ohio Fuel Gas 1.
York—H. G. Wolf, Logan Gas 1.
Elizabeth Mayer, Ohio Fuel Gas 1.
Guilford—J. & M. Winkle, Central Ohio Gas 1.
Rigs, 4; wells drilling, 11; total, 15.

LORAIN COUNTY
Rigs

Grafton—Robt. Nesbit, East Ohio Gas 1.
Wells Drilling
Grafton—Leland Wise, Ohio Fuel Gas 1.
Fred Klinect, Logan Gas 2.
Rigs, 1; wells drilling, 2; total, 3.

WAYNE COUNTY
Rigs

Cannan—W. Shoemaker, Central Ohio Gas 1.
M. O. Shoemaker, Central Ohio Gas 1.
M. Younker, Klise-Eckstein-McCann 1.
Wells Drilling
Wooster—Lee N. Martin, Ohio Oil 1.
L. I. Buchanan, Ohio Oil 1.
Chippewa—W. Beiner, East Ohio Gas 1.
A. E. Steiner, East Ohio Gas 1.
Milton—A. & C. Schar, East Ohio Gas 1.
Elmer Stainer, Logan Gas 1.
Plain—J. W. Horn, Logan Gas 2.
Wm. Beard, Logan Gas 1.
E. Ely, Logan Gas 1.
W. M. Gill, Logan Gas 3.
Cannan—E. G. Klinker, Logan Gas 1.
V. O. Bowman, Logan Gas 2.
S. L. Whonsettler, Ohio Fuel Gas 1.
S. Whonsettler, Ohio Fuel Gas 2, 3.
Wm. S. Smith, Ohio Fuel Gas 3.
S. Whitmore, Baker Bros. 2.
E. & G. Myers, Arthur & Mills 3.
R. J. Whonsettler, C. A. Rice & Co. 1.
Rigs, 3; wells drilling, 19; total, 23.

RICHLAND COUNTY
Wells Drilling

Springfied—Hout, Berry & Hout 1.
Monroe—S. M. Douglas, Ohio Fuel Gas 1.
Rigs, 0; wells drilling, 2; total, 2.

HOCKING COUNTY
Rigs

Benton—J. W. Mauk, Logan Gas 6.
Wells Drilling
Benton—Jeremiah Illes, Ohio Fuel Gas 1.
A. B. Lytle, Logan Gas 1.
J. & Cora Cain, Logan Gas 2.
Rigs, 1; wells drilling, 3; total, 4.

VINTON COUNTY
Wells Drilling

Clinton—B. F. Wells, Ohio Fuel Gas 1.

HOLMES COUNTY
Rigs

Monroe—Chas. Barnes, Ohio Fuel Gas 3, 4.
B. P. & Lena Uhl, Ohio Fuel Gas 3.
McCullough, East Ohio Gas 1.
J. B. Finney, Central Ohio Gas 1.
W. A. Smith, Central Ohio Gas 1, 2.
Washington—W. F. Fulmer, Logan Gas 1.
Wells Drilling
Monroe—Charles Barnes, Ohio Fuel Gas 1.
B. P. & Lena Uhl, Ohio Fuel Gas 1, 2.
Oscar Korns, Ohio Fuel Gas 2.
Milton J. Lowe, East Ohio Gas 2.
Charles Barnes, Klise-Eckstein-McCann 3.
Thos. Allison, Central Ohio Gas 1.
S. V. Allison, Central Ohio Gas 1.
U. S. Davenport, Central Ohio Gas 1.
Milton F. Bell, Central Ohio Gas 2.
J. H. Lepple, Central Ohio Gas 1.
Oscar Korns, Central Ohio Gas 2.
Prairie—R. E. Robinson, Ohio Oil 1.
W. F. Kendall, East Ohio Gas 1.
Hardy—Jac. Uhl, East Ohio Gas 3, 4.
H. & C. Sterling, East Ohio Gas 1.
Scott V. Mast, Logan Gas 1.
Rigs, 7; wells drilling, 18; total, 25.

COSHOCTON COUNTY
Rigs

Newcastle—Wm. Johnson, Logan Gas 1.
Wells Drilling
Newcastle—Mose Dalliere, Logan Gas 1.
Wm. Ringwalt, Logan Gas 3.
Rigs, 1; wells drilling, 2; total, 3.

JACKSON COUNTY
Rigs

Franklin—M. L. Kinnon, Logan Gas 1.
S. Cherrington, Ohio Fuel Supply 1.
Washington—Emma Coal, Ohio Fuel Gas 3.
Wells Drilling
Coal—Ed Townsend, Ohio Fuel Supply 1.
G. W. Roach, Ohio Fuel Supply 1.
Dave D. Evans, Ohio Fuel Supply 1.
Franklin—Matilda Mercer, Ohio Fuel Supply 1.
Lick—Mary B. Emmons, Ohio Fuel Supply 2.
Rigs, 3; wells drilling, 5; total, 8.

ATHENS COUNTY
Rigs

Carthage—Ed Rowan, Ohio Fuel Supply 1.
M. Kinnon, Logan Gas 3.
Wells Drilling
Carthage—Jacob Varner, McBride & Co. 1.
F. W. Chapman, Shady River O. & G. 10.
J. E. Bailey, Fay & G. 4.
E. Dunlavey, Bradford O. & G. 7.
Rigs, 2; wells drilling, 4; total, 6.

MEIGS COUNTY
Rigs

Sutton—Robert Crow, Ohio Fuel Supply 1.
M. L. Easterday, Ohio Fuel Supply 1.
Wells Drilling
Sutton—C. W. Cornell, Ohio Fuel Supply 1.
Rigs, 2; wells drilling, 1; total, 3.

SUMMITT COUNTY
Wells Drilling

Richfield—E. M. Merton, East Ohio Gas 2.

KENTUCKY-TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Wayne	3	20	0	0	0	13	13
Powell	2	18	0	0	0	1	1
Estill	1	2	0	0	0	1	1
Wolfe	3	115	1	0	0	4	4
Lee	11	129	0	1	0	8	8
Lawrence-Johnson	24	868	0	0	0	19	19
Johnson-Magoffin	12	120	0	0	0	22	22
Allen	19	87	10	0	0	20	20
Warren	13	202	3	0	3	25	28
Barren	27	152	3	2	0	26	26
Owensboro	9	52	2	0	0	12	12
Cumberland	7	261	3	0	0	12	12
Monroe	3	0	3	0	0	0	0
Russell	7	37	2	0	0	4	4
Adair	0	0	0	0	0	1	1
Franklin	1	6	0	0	1	1	2
Edmondson	1	0	1	0	0	0	0
Metcalf	2	50	1	0	0	4	4
Tylor	1	0	1	0	0	0	0
Owsley	1	4	0	0	0	3	3
Breathitt	0	0	0	0	0	1	1
Rowan	0	0	0	0	0	5	5
Laurel	0	0	0	0	0	2	2
Pike	0	0	0	0	0	1	1
Harlan	0	0	0	0	1	0	1
Elliott	1	0	1	0	0	5	5
Bell	0	0	0	0	0	1	1
Madison	0	0	0	0	0	1	1
Menifee	2	0	2	0	0	0	0
Floyd	1	0	1	0	1	3	4
Fleming	0	0	0	0	0	2	2
Green	1	0	1	0	0	0	0
Logan	0	0	0	0	0	3	3
Martin	4	0	0	4	0	1	1
Kentucky	156	2,123	35	7	6	201	207
Tennessee	0	0	0	0	3	17	20
Mississippi	0	0	0	0	6	20	26
Alabama	0	0	0	0	0	11	11
Georgia	0	0	0	0	1	4	5
Total Oct.	156	2,123	35	7	16	253	269
Total Sept.	122	1,298	20	2	21	238	259
Difference	34	825	15	5	5	15	10

WAYNE COUNTY
Wells Completed

Monticello—T. L. Harmon, J. C. Brammer & Co. 1..... 5
Upchurch, Head, Brown & Co. 3..... 10
Harmon, Spracklin & Marsh 1..... 5

Wells completed 3
Production 20
Gas 0
Dry 0

POWELL COUNTY

Slade—J. M. Ashley, United Central O. & G. 23 8
Mays, W. E. Hupp, trustee 5 10

Wells completed 2
Production 18

ESTILL COUNTY

Irvine—Millard Ballard, T. A. Gleason, trustee 5 2

WOLFE COUNTY

Torrent—T. R. Horton, McCombs Prod & Ref. 7..... 15
Jas. Roberts, Atlantic Oil Prod. 1.... 100
J. D. Spencer, Federal O. & G. 4.... dry

Wells completed 3
Production 115
Dry 1
Gas 0

LEE COUNTY

Beattyville—Medley S. Cole, R. M. Smythe & Co. 5..... 3
Louis Evans, Petroleum Exploration 1 1
Hag Rowland, Petroleum Explo. 1... 3
Spence Flannery, Petroleum Explo. 8 3
Spence Flannery, Petroleum Explo. 9 3
Geo. Bortner, Petroleum Explo. 11... 1
Chester Gourlay, Petroleum Explo. 2. dry
Sam Judd, Hupp, Duff & Co. 1..... 4
J. E. Mays, Hupp, Duff & Co. 1..... 1
Dave Mays, Hupp, Duff & Co. 12.... 3
James Porter, Hupp, Duff & Co. 1.... 1

Wells completed 11
Production 130
Gas 1
Dry 1

LAWRENCE-JOHNSON COUNTIES

North Weir—J. J. Gambill, Union G. & O. 34 40
Martha Kelley, Union G. & O. 12..... 16
D. H. Ferguson, Union G. & O. 5..... 6
P. P. Holbrook, Union G. & O. 28..... 30
R. N. Sparks No. 1, Union G & O 1.. 100
M. E. Sparks, Union G. & O. 9..... 10
L. Sparks, Union G. & O. 3..... 100
Laura Skaggs, Union G. & O. 7..... 10
J. A. Dials, Union G. & O. 7..... 10
Andrew Skaggs, Union G. & O. 18... 15
C. K. Dobyne No. 2, Union G. & O. 1 100
C. K. Dobyne No. 3, Union G. & O. 1. 100
W. D. Lester, Union G. & O. 3..... 100
George Evans, Union G. & O. 13..... 60
Geo. Gillam No. 2, Indian-Tex Pet. 10 10
Geo. Gillam No. 2, Indian-Tex Pet. 11 15
Jesse Rose, Indian-Tex Pet. 7..... 35
J. A. Gilliam, Indian-Tex Pet. 4..... 6
W. M. Boggs, Cumberland Pet. 10.... 10
W. M. Boggs, Cumberland Pet. 3..... 2
Board of Education, Wheeler-Brown Oil 2 1
Geo. Salyer, M. W. Larkins 3..... 1
Ira Lester, W. M. Stone & Co. 6..... 2
Nora Lemaster, J. M. Meek, trustee 3 4

Wells completed 24
Production 400
Gas 1
Dry 4

JOHNSON-MAGOFFIN COUNTIES

South Weir—J. T. Patrick, Burning Fork Syndicate 8..... 10
R. L. Salyer, Burning Fork Synd. 5.. 10
J. H. Arnett, Bed Rock Oil 15..... 15
H. H. May, Short Fork Oil 6..... 10
Frank Conley, Atlantic O. Prod. 15.. 15
G. H. Gardner, New Domain O. & G. 8 25
J. T. Conley, Cumberland Pet. 5..... 5
Jesse Borders, Cooper & Sublet 6..... 5
Bailey Heirs, Diamond Oil 8..... 10
Hernado Grace, Hudson & Collins 5.. 10
C. E. Roark No. 2, Kentucky Counties Oil 3..... 10
Chas. Wheeler, Carter Oil 2..... 1

Wells completed 12
Production 120
Gas 0
Dry 6

ALLEN COUNTY

Scottsville—R. H. Good, C. R. Borah 9 dry
Sue Moore, Pelican Oil 18..... dry
Robinson, L. D. Robinson 17..... dry
R. S. Welch, Ross Work 1..... dry
Dodson, Pearson & Co. 3..... dry
V. R. Hinton, Berry & Co. 3..... dry
B. Stamps, Berry & Co. 14 10
J. E. Meredith, C. K. Boller 1..... 1
Alderson, Jim Lee 1..... 10
M. C. Carver, Bastrus, Johnson & Miller 4 5
Stovall, Gardner & Co. 7..... 5
J. F. Johnson, O. C. Fletcher 6..... 5
J. C. French, White Plains O. & G. 7 15
Cherry, McAlpine & Co. 6..... 5
Kerley, Neil-Huebring Co. 11..... 5
Pepper, Andrus & Millett 1..... dry
C. W. Johnson, W. R. Thompson 1.. dry
Freeley Harris, Roy Hinton 1..... dry
A. Lyle, Bastrus & Barton Bros. 3.... dry

Wells completed 13
Production 57
Dry 10
Gas 0

WARREN COUNTY

Bowling Green—G. Riggiewood, H. J. Dobson 4 5
Smith Bros., D. T. Bolling 1..... dry
H. Bryant, Cunningham & Henry 4.. dry
T. Davenport, T. A. Sheridan 7..... 25
T. Davenport, T. A. Sheridan 8..... 5
Kuykendall, A. Allen & Co. 25
McLemore, Olive Green Oil 8..... 5
Cox, Geo. Stewart 19..... 60
Ben Ford, Roy Hogan 1..... 5
S. T. Pearson, Dixon & Co. 8..... 5
L. C. Dillard, Roy Hogan 2..... 10
Foster, C. E. Foster & Co. 1..... 5
Dr. Moss, Frank Fritz 5..... 30

Wells completed 13
Production 200
Dry 5
Gas 0

BARREN COUNTY

Glasgow—Taylor, T. L. Gorby 2..... 5
Lessenbury, T. L. Gorby 1..... dry
Saunders, Lew J. Emery Sons 1..... dry
Davidson, Lew J. Emery Sons 1 4
Wininger, Carter Oil 10..... 15
Wininger, Carter Oil 11..... 5
Goodwin, Carter Oil 3..... 5
G. L. Jackman, J. C. S. Oil Corp. 1 5
H. Jones, J. C. S. Oil Corp. 1..... 10
Moore, Fred Moore 4..... 5
Moore, Fred Moore 5..... dry
Redman, Wood Oil 1..... 5
T. Mansfield, Ziegler Bros. 4..... 5
Bradford, Ziegler Bros. 1..... 10
Brennen, Ziegler Bros. 4..... 5
Hans Gassaway, Fred More & Baker 1
I. N. Mansfield, Houchings Leasehold 8 15
I. N. Mansfield, Houchings Leasehold 9 5
Button, Houchings Leasehold 53..... gas
Duff, Norris Bros. 2..... gas
Lon Page, Consolidated Gas 1..... 10
Wynn, Elem O. & G. 4..... 15
Neely, Mazel Oil 3..... 15
Neely, Mazel Oil 4..... 5
Ritchie, Star Oil 11..... 5

Scott, Gillespie & Wiggins 6..... 12
Smith, Akers Oil 15..... 4

Wells completed 27
Production 152
Dry 3
Gas 2

OWENSBORO DISTRICT

Owensboro—J. Powers, New Domain O. G. 1 ..... dry
Harrison, Wood Oil 1..... dry
Vos Haynes, Nutty & Pyle 1..... 1
R. M. Miller, Panther Creek Oil 9.... 10
R. M. Miller, Panther Creek Oil 10.... 8
R. M. Miller, C. C. Boop 2..... 6
S. V. Flower, O. C. Boop 2..... 10
Lowe Helm, C. A. Leeper 4..... 15
Anna Stewart, C. A. Leeper 10..... 2
Elisabeth Ward, C. E. Daugherty 1.. 2

Wells completed 9
Production 52
Dry 2
Gas 0

CUMBERLAND COUNTY

Burksville—Huddleston-Payne, Carter & Combest 2..... 190
Huddleston-Payne, Carter & Combest 3 8
Kerr, McClintock Oil 7..... 38
Coffee, Young Oil 2..... 25
Rush, Wabash Valley O. & G. 1..... dry
Parrish, Mason & Co. 1 ..... dry
J. A. Graves, McIntyre & Co. 1..... dry

Wells completed 7
Production 261
Dry 3
Gas 0

MONROE COUNTY

Tompkinsville—Ferguson, Unknown 1.. dry
Vance, C. E. Dice 1..... dry
J. B. Chappell, W. G. Bowles, ... dry

Wells completed 3
Production 0
Gas 0
Dry 3

RUSSELL COUNTY

Creelsboro—W.C. Dalton, Carnahan Oil 3 15
F. Garner, Carnahan Oil 1..... 5
Mrs. Coffee, Armstrong & Co. 3.... 7
E. Campbell, Armstrong & Co. 2.... 5
E. Mann, J. G. Eimett 2..... 5
L. D. Potts, R. F. Logan 1..... dry
F. M. Platt, Redman & Co. 1 ..... dry

Wells completed 7
Production 37
Dry 2

SIMPSON COUNTY

Franklin—Holland, Brockheimer & Co. 1 6

EDMONDSON COUNTY

Brownsville—W. T. Burtram, J. C. S. Oil Corp. 1 ..... dry

METCALF COUNTY

Edmonton—Lambert, Great Scott Oil 1 50
Beard, T. L. Gorby 1..... dry

Wells completed 2
Production 50
Dry 1
Gas 0

TAYLOR COUNTY
Wells Completed

Campbellsville—Near Maple, Wood Oil 1 dry

OWSLEY COUNTY
Wells Completed

Boonville—Judd, Hupp, Duff & Co. 1... 4

ELLIOTT COUNTY
Wells Completed

Sandy Hook—Wagner, Superior Oil 1.. dry

MENIFEE COUNTY
Wells Completed

Frenchburg—Gilson Bash,, W. O. Beck & Co. 1 ..... dry
Bashford 1 ..... dry

Wells completed 2
Production 0
Gas 0
Dry 2

FLOYD COUNTY
Wells Completed

Hueyville—J. Webb, Tom Demis, trustee 2 ..... dry

GREEN COUNTY
Wells Completed

Greenville—Waller, Wood Oil 1..... dry

MARTIN COUNTY

Inez—Dempsey, Big Darby O. & G. 1, 2 gas
Blankenship, Big Darby O. & G. 2, 3. gas

Wells completed 4
Production 0
Gas 4
Dry 0

WAYNE COUNTY
Wells Drilling

Monticello—Ira Guffey, C. E. Daugherty & Co. 2.
M. F. Hicks, Geo. A. Hooks & Co. 1.
J. Bobbitt, Meredith & Co. 1.
Bell Heirs, Wetzel & Bell 1.
Upchurch, Head, Brown & Co. 1.
John W. Huffaker, Bridgeman Oil 1.
W. F. Asberry, J. H. Hatfield & Co. 4.
S. Bryant, A. G. Bryant 2.
Morrow Heirs, Bowden & Co. 2.
Grover Roberts, Cooper & Miller 1.
Burnett, Superior Oil Corp. 1.
Elam, Wright & Bell 1.
T. C. Morrow, Beaver Oil 7.
Rigs, 0; wells drilling, 13; total, 13.

POWELL COUNTY
Wells Drilling

Slade—W. D. Curtis, Knight & Biemer 1.

ESTILL COUNTY
Wells Drilling

Irvine—Sam Miller, Smith, Clark & Co. 2.

WOLFE COUNTY
Wells Drilling

Torrent—T. R. Horton, McCombs Prod. & Ref. 8.
Jas. Roberts, Atlantic Oil Prod. 2.
Watson Heirs, Superior Oil Corp. 2.
E. B. Roberts, Federal Oil Corp. 3.
Rigs, 0; wells drilling, 4; total, 4.

LEE COUNTY
Wells Drilling

Beattyville—Huntington, Huntington Oil Syndicate 1.
J. D. Smythe, Superior Oil Corp. 23.
Demise, Demise & Co. 1.
Adaline Porter, Hupp, Duff & Co. 4.
George Porter, Hupp, Duff & Co. 3.
Gourley-McGuire, Black Gum Oil 6, 7.
Spence Flannery, Petroleum Exploration Co. 11.
Rigs, 0; wells drilling, 8; total, 8.

LAWRENCE-JOHNSON COUNTIES
Wells Drilling

North Weir—C. K. Dobyne No. 2, Union G. & O. 2.
Wm. Lester, Union G. & O. 7.
Levisa Skaggs, Union G. & O. 17.
P. P. Holbrook, Union G. & O. 29.
J. C. Gilliam No. 1, Union G. & O. 8.
W. O. Gambill, Union G. & O. 1.
R. N. Sparks No. 2, Union G. & O. 1.
John Rose, Union G. & O. 4.
J. J. Skaggs, Cumberland Pet. 3.
W. M. Boggs, Cumberland Pet. 11.
W. H. Kelley, Mid-South Oil 2.
Wayne, Tom Hays 1.
Milt Williams, Central Ky. Gas 4.
C. Osborne, Skaggs, Miller & Co. 1.
S. C. Skaggs, Figley, Day & Co. 5.
S. Q. Kelley, W. M. Stone & Co. 1.
Ira Lester, W. M. Stone & Co. 1.
J. D. Bond, J. T. Hare & Co. 3.
J. Lyons, Keaton O. & G. 29.
Rigs, 0; wells drilling, 19; total, 19.

JOHNSON-MAGOFFIN COUNTIES
Wells Drilling

South Weir—Cleveland Salyer, Bed Rock Oil 2.
Elk Horn Coal, Petroleum Explo. 1.
Wm. Flint, Petroleum Explo. 1.
Sam Blanton, R. G. Gillespie 19, 20, 21, 22.
Tollie Conley, R. G. Gillespie 6.
J. D. Moore, R. G. Gillespie 3.
S. Howard, Mid-South Oil 5.
Sam Blanton, Mid-South Oil 6.
Sam Collins, Cumberland Pet. 10.
J. P. Conley, Superior Oil Corp. 2.
W. M. Frater, Structure Oil 9.
T. J. Powers, Clyde Oil 2.
Julia Salyer, Magoffin Dev. Synd. 2.
C. C. Meade, C. C. Meade & Co. 1.
F. M. Tackett, Wheeler & Co 1.
Bailey Heirs, Diamond Oil 2.
W. P. Adams, Oliver Jenkins & Co. 5.
Salyer Heirs, Oliver Jenkins & Co. 7.
Rigs, 0; wells drilling, 22; total, 22.

ALLEN COUNTY
Wells Drilling

Scottsville—Frank Martin, Dickson & Sledge 5.
Bert Hinton, Frank Seaton 3.
J. E. Meredith, C. K. Boller 1, 2.
Levi Hinton, Pennsylvania Parties 5.
I. Hinton, Free Lance Oil 6.
R. T. Williams, F. J. Chipman 4.
W. E. Oliver, Lewis Oil Corp. 2.
Pepper, Andrus & Millett 2.
R. S. Welch, Work & Co. 2.
Wheat, Parson, Bastrus & Co. 3, 4.
Cherry, McAlpin & Co. 7.
W. L. Motley, Thompson & Co. 7.
Tinsley, Ming & Co. 1.
Clay Harmon, Zeigler & Co. 2.
M. Dodson, Williams & Davis 1.
W. C. Carver, Bastrus, Johnson & Miller 5.
Lucy Boucher, Unique Oil 6.
J. T. Johnson, O. C. Fletcher 7.
Rigs, 0; wells drilling, 20; total, 20.

WARREN COUNTY
Rigs

Bowling Green—Gillespie, H. Z. Clark 5.
Grider-Gardner, Ohio Fuel Oil 2.
O. Frimes, Wood Oil 6.
Wells Drilling
Bowling Green—Vance, Illinois-Kentucky Oil 6.
J. Isabell, Wood Oil 14.
Price-Hall, Ruby Cons. Dev. 5.
G. Davenport No. 2, T. A. Sheridan 5, 6, 7.
Young, Makeever Bros. 12.
T. Davenport, T. A. Sheridan 4.
Duncan, Western Engineering Dev. 3.
Smith, H. V. Taylor 9.
Morehead, Lucille O. Synd. 5.
Biddle, Cadet O. & G. 22.
Reynolds, Dafoe & Co. 5.
Smith Bros., Lowman Bros. 1.
Ben Ford, Roy Hogan 2, 3.
G. Davenport No. 2, T. A. Sheridan 3, 4.
W. R. Hutton, P. H. Lavelle 6.
McDonald, D. T. Bolling 1.
J. Perkins, Gipe, Carroll & Christian 1.
H. Shaner 20 acres, J. L. Fort 1.
H. Shaner, Doak, Wiles & Co. 3.
Bryant, Cunningham & Henry 5.
Cox, Stewart & Bannon 20.
Rigs, 3; wells drilling, 25; total, 28.

BARREN COUNTY

Glasgow—Free, Star Oil 2.
Ritchie, Star Oil 10.
Taylor, T. L. Gorby 3.
Cassiday, T. L. Gorby 1.
G. Lessenbury, T. L. Gorby 2.
Ritter Bros., Stafford & Maxey 2.
Wynn, Callahan & Wynn 2.
Mack Mansfield, J. G. Esslinger 1.
Jones, Baird Oil 1.
Howard, Fred Moore 4.
Fee, Fred Moore 6.
H. Gassaway, Moore & Baker 2.
Jackman, Rice & George 1.
Bishop, Taylor Bishop 2.
Oakes, F. A. Brendall 1.
Matthews, W. S. Raydure 1.
Barton, Lew J. Emery Sons 3.
Dick Bridges, Lew J. Emery Sons 1.
Chitwood, J. Porter & Co. 2.
G. L. Jackman, J. C. S. Oil Corp. 2.
Lon Page, Consolidated Gas 2.
Evans, Consolidated Gas 1.
Wininger, Carter Oil 12.
Goodrum, Carter Oil 3.
B. Martin, J. C. S. Oil Corp. 1.
L. H. Nichols, Smith & Son 2.
Rigs, 0; wells drilling, 26; total, 26.

OWENSBORO DISTRICT
Wells Drilling

Owensboro—F. B. Miller 61 acres, C. E. Daugherty 1.
G. M. Burdette, C. E. Daugherty 1.
J. P. Howard, C. E. Daugherty 1.
J. L. & A. T. Casey, Ike N. Harkless 5.
Dick Spurrier, Ike N. Harkless 2.
Gunthre, Palmer Oil Syndicate 1.
Lone Helm, C. A. Leeper 5.
Tom Jackson, St. Louis Parties 3.
W. S. Howard, Cowling & Co. 1.
Skinner, Kentucky Oil 1.
Dave King, Greasy Creek Oil 4.
Jesse Swope, Nutty & Pyle 1.
Rigs, 0; wells drilling, 12; total, 12.

CUMBERLAND COUNTY
Wells Drilling

Burksville—M. Scott, Coe & Co. 1.
Kin Crawford, Dayton O. Syndicate 4.
Coffee, Young Oil 3.
Mrs. Coop, Kanawha Oil 1.
Gilbert, Grant, Curtis & Co. 1.
Doll Bales, Vedder Oil 1.
Widow Fletcher, Robt. Stead 1.
W. Anderson, W. S. Raydure 1.
Cary, W. S. Raydure 1.
J. B. Hume, Judio Dev. 5.
Logan, E. N. Ahlfeldt 3.
Widow Coop, W. S. Raydure 2.
Rigs, 0; wells drilling, 12; total, 12.

RUSSELL COUNTY
Wells Drilling

Creelsboro—A. O. Lay, Redman & Co. 1.
Nellie Bledson, Creelsboro Parties 1.
B. F. Leach, Carnahan Oil 4.
J. J. Goodrum, Oldham & Co. 1.
Rigs, 0; wells drilling, 4; total, 4.

ADAIR COUNTY
Wells Drilling

Columbia—Smith, Bartow, Florida Interests 2.

SIMPSON COUNTY
Rigs

Franklin—Summers, E. M. Treat & Co. 13.
Wells Drilling
Franklin—Smith, W. H. Martin 1.
Rigs, 1; wells drilling, 1; total, 2.

METCALF COUNTY

Edmonton—Near Edmonton, J. C. Richards 1.
A. J. Thompson, T. Petty & Co. 1.
L. Ball, T. L. Gorby 1.
L. H. Thompson, Hartramp & Co. 1.
Rigs, 0; wells drilling, 4; total, 4.

OWSLEY COUNTY
Wells Drilling

Boonville—Elmer Evans, Combs Bros. Dev. 4, 5.
Rowland, Marcum & Congelton 1.
Rigs, 0; wells drilling, 3; total, 3.

BREATHITT COUNTY
Wells Drilling

Jackson—H. Hurst, Petroleum Explo. 4.

ROWAN COUNTY
Wells Drilling

Morehead—Craney Creek, Patton O. & G. 1.
Unknown, McDonald & McGuire 1, 2.
Kennard, M. E. Kennard 1.
McFelson, McFelson 1.
Rigs, 0; wells drilling, 5; total, 5.

LAUREL COUNTY
Wells Drilling

London—Hubbard, Piney O. & G. 1.
Nernstadt, Common O. & G. Co. 1.
Rigs, 0; wells drilling, 2; total, 2.

PIKE COUNTY

Pikeville—Pond Creek Coal, A. J. Dalton & Co. 1.

HARLAN COUNTY
Rigs

Harlan—Cawood, Rex G. Carpenter 1.

ELLIOTT COUNTY
Wells Drilling

Sandy Hook—G. W. Kapples, T. J. Evans 2.
G. W. Kelley, McConnell & Co. 1.
Ves Peters, Sandy River Oil 5.
J. F. Dials, Wheeler & Campbell 3.
Brit Lewis, Dr. Smith 1.
Rigs, 0; wells drilling, 5; total, 5.

BELL COUNTY
Wells Drilling

Middlesboro—Canada Mt., Canada Peak Oil Co. 1.

MADISON COUNTY
Wells Drilling

Boonsboro Beach—D. J. Williams, J. N. Thompson & Co. 1.

Rigs

Hueyville—C. D. Patrick, Carter Oil 1.
Wells Drilling
Hueyville—Kentucky River Coal, Brown & Harmon 1.
S. C. Allen, Eastern Carbon Black 7.
C. E. Allen, Eastern Carbon Black 1.
Rigs, 1; wells drilling, 3; total, 4.

FLEMING COUNTY
Wells Drilling

Flemingsburg—Near Grange City—Pierce, Hawkins & Co. 1.
Unknown, Dr. Connelly 1.
Rigs, 0; wells drilling, 2; total, 2.

LOGAN COUNTY
Wells Drilling

Russellville—Watson 100 acres, Johnson & Co. 1.
Watson S. W. 50 acres, Stewart & Co. 1.
Watson W. 50 acres, Foster & Co. 1.
Rigs, 0; wells drilling, 3; total, 3.

MARTIN COUNTY
Wells Drilling

Inez—Alfred Carter, Big Darby O. & G. 1.

TENNESSEE

CLAY COUNTY
Wells Drilling

Celina—Patterson, Souls & Co. 3.
Greenwood, Souls & Co. 2.
Stanford, Dixon & Co. 2.
Short, Powell Oil 3.
Stover, Alexander & Co. 2.
Unknown, Spain & Co. 2.
Rigs, 0; wells drilling, 6; total, 6.

SUMNER COUNTY
Wells Drilling

Gallatine—Stewart & Terrell, T. A. Sims 1.
Unknown, E. A. Oliver Snyd. 1.
Rigs, 0; wells drilling, 2; total, 2.

OVERTON COUNTY
Wells Drilling

Mitchell Creek—Boswell & Co. 1.

JACKSON COUNTY
Wells Drilling

Jackson—Howard, Continental Oil 2.

GIBSON COUNTY
Wells Drilling

Dyer—Unknown, Dyer Oil & Gas 1.

HARDEMAN COUNTY
Wells Completed

Bolivar—Brown Sans, Spring Valley O. & G. Co. 1.

FAYETTE COUNTY
Rigs

Sommerville—Perry, Strickland & Co. 1.

SHELBY COUNTY
Wells Completed

Arlington—Garrett, Arlington O. & G. 2.

BENTON COUNTY
Rigs

Near Camden—Unknown 1.
Wells Drilling
Near Eva—Clarksville O. & G. 1.
Rigs, 1; wells drilling, 1; total, 2.

HAMILTON COUNTY
Rigs

Chattanooga—Near Daisy, Dryden & Co. 1.

MURRAY COUNTY
Wells Drilling

Hampshire—McClelland, Dr. Doren 1.

RHEA COUNTY
Wells Drilling

Dayton—Unknown 1.

DAVIDSON COUNTY
Wells Drilling

Nashville—Stevens, Oliver & Lindsay 1.

MISSISSIPPI

CHICKASAW COUNTY
Wells Drilling

Houston—Flarity, Danner G. & O. Trust 1.

CLAY COUNTY
Rigs

West Point—Gulf Development 1.

PIKE COUNTY
Rigs

Magnolia—Poor House, Mississippi Exploration 2.

UNION COUNTY
Rigs

Wallersville—Sappington, Minyard Wells 1.
Wells Drilling
Wallersville—Woodson, Minyard Wells 1.
Rigs, 1; wells drilling, 1; total, 2.

FRANKLIN COUNTY
Wells Drilling

Jackson—McCabe, Fletchering & Co. 1.

COPIAH COUNTY
Wells Drilling

Sec. 6-2-1, Didlake, Marshall Oil 1.
Sec. 23-1-3 White, B. H. White 2.
Rigs, 0; wells drilling, 2; total, 2.

HINDS COUNTY
Wells Drilling

Elton—Jackson Oil 2.

JEFFERSON COUNTY
Wells Drilling

Truly—Truly, Manhattan-Tex Pet. 2.

JACKSON COUNTY
Wells Drilling

Pascagoula—Near Utica, Jackson Oil 1.

LAFAYETTE COUNTY
Wells Drilling

Oxford, Section 27-11-4—Banks, Kinsey & Co. 1.

LOWNDES COUNTY

Sec. 12-8-1—Near Artesia, Billups, Anderson Drilling Co. 1.

LINCOLN COUNTY
Wells Drilling

Near Hartman—Anderson Drilling 1.

WASHINGTON COUNTY
Wells Drilling

Williams—Alhambra Oil 3.

ITAWAMBA COUNTY
Wells Drilling

Sec. 7-10-9—Summers, Stenum & Co. 1.

CALHOUN COUNTY
Rigs

Calhoun City—Gregory, Northeast O. & G. Co. 1.

LEAKE COUNTY
Wells Drilling

Carthage—Near Conway, Chas. B. Stoll 1.

MADISON COUNTY
Wells Drilling

Section 7-10-4—Madison O. & G. 1.

GRANADA COUNTY
Wells Drilling

Granada—Borden & Co. 1.

CLAIBORNE COUNTY
Rigs

Port Gibson—Young, Mississippi Exploration 1.

HOLMES COUNTY
Rigs

Sec. 18-13-1—Near Coxburg, Free Run Oil 1.

PANOLA COUNTY
Wells Drilling

Sec. 35-37-2—Klihni, Courtland O. & G. 1.

PERRY COUNTY
Wells Drilling

Richton—Donald, Donald Oil 1.

RANKINS COUNTY
Wells Drilling

Sec. 7-3-4—Finbone Oil 1.

SCOTT COUNTY
Wells Drilling

Sec. 21-6-3—Graham, Mississippi O. & G. Syndicate 1.

ALABAMA

MORGAN COUNTY

Sec. 6-6-1—English, Albany-Decatur Oil 1.

BALDWIN COUNTY
Wells Drilling

Sec. 21-2-3—Evans, Stoll & Co. 1.

SUMTER COUNTY
Wells Drilling

Cartopa—Sam W. Kendall 1.

HALE COUNTY
Wells Drilling

Greensborough—Hale Oil 1.

SHELBY COUNTY
Wells Drilling

Chelsea—Scott, Cooksey Oil 1.

WILCOX COUNTY
Wells Drilling

Selma—Blue Bell Oil 1.

CLARK COUNTY
Wells Drilling

Sec. 35-8-1—Orgus, Keoughan Oil 1.
Columbia—Intercoastal Oil 1.
Rigs, 0; wells drilling, 2; total, 2.

MADISON COUNTY
Wells Drilling

Huntsville—T. H. Mahoney 1.

COLBERT COUNTY
Wells Drilling

Sheffield—Ligon, Spring Valley O. & G. 1.

LAWRENCE COUNTY
Wells Drilling

Near Moulton—Tulsa Parties 1.

GEORGIA

PULASKI COUNTY
Rigs

Hawkensville—Florida-Georgia Cons. Oil 1.

JEFF DAVIS COUNTY
Wells Drilling

Hazlehurst—Mid-Georgia O. & G. 1.

TELFAIR COUNTY
Wells Drilling

Scotland—Telfair Oil 1.
Wells Drilling

BURKE COUNTY

Green Cut—Three Creeks Oil 1.

WHITEFIELD COUNTY
Wells Drilling

Dalton—Richardson O. & G. 1.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE REPORT FOR SEPTEMBER

Runs

	Month	Dy. Av.
*Prairie P. L. Co.	4,080,000	136,000
Gulf P. L. Co.	1,275,517	42,517
Texas P. L. Co.	366,444	12,215
Magnolia Pet. Co.	1,166,513	38,884
Empire P. L. Co.	847,309	28,243
Cosden P. L. Co.	716,288	23,876
*Sinclair P. L. Co.	1,095,000	36,500
*Other lines	9,120,000	304,000
Total Sept.	18,667,071	622,235
Total August	18,781,813	605,865
Difference	114,742	16,370

Shipments

†Prairie P. L. Co.	3,024,324	100,811
Gulf P. L. Co.	1,109,937	36,998
Texas P. L. Co.	822,971	27,432
Magnolia Pet. Co.	800,706	26,690
Empire P. L. Co.	1,113,413	37,114
Cosden P. L. Co.	672,237	22,408
†Sinclair P. L. Co.	1,885,922	62,864
Other lines	8,520,000	284,000
Total Sept.	17,949,510	598,317
Total August	17,573,320	566,881
Difference	376,190	31,436

Stocks

*Prairie Oil & Gas Co.	26,000,000
*Prairie Pipe Line Co.	2,000,000
Gulf P. L. Co. and Gypsy Oil Co.	9,822,425
The Texas Co.	6,319,335
Magnolia Pet. Co.	9,350,096
Empire Pipe Line Co.	3,163,256
Cosden Pipe Line Co.	2,968,275
*Sinclair Crude Oil Purchasing Co.	29,550,000
Carter Oil Co.	17,843,447
*Other lines	10,600,000
Total September	117,616,834
Total August	116,674,160
Difference	942,774

*Estimated. †Includes shipments of Texas crude by Prairie Pipe Line and Texas and Wyoming crude by the Sinclair Pipe Line.

Note—Stocks do not include approximately 8,600,000 bbls. of crude oil held in storage on private tank farms and leases.

Runs from Wells

In the following table will be found the regular receipts from wells by arious pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for August and September.

	Aug., '24	Sept., '24
Nat. Transit	181,414.09	182,088.41
S. W. Pa. P. L.	81,053.49	78,896.56
Eureka P. L.	345,884.02	351,485.53
Buckeye P. L. (Macksburg)	260,181.20	266,724.36
Buckeye P. L. (Cleveland)	13,813.10	14,345.30
Buckeye P. L. (Lima, etc.)	133,212.27	137,043.37
Indiana P. L.	12,415.93	13,098.14
Cumberland P. L.	333,217.34	343,759.39
N. Y. Transit	18,749.61	17,950.12
Tidewater P. L.	145,298.64	148,166.41
Pure Oil P. L.	186,362.59	189,929.55
Emery P. L.	37,151.95	39,983.11
Indian Ref.	60,022.97	58,273.83
Paragon Dev.	41,247.90	39,270.91
Pittsburgh P. L.	8,191.73	6,874.72
Total	1,858,216.83	1,887,898.71
Daily average	59,942.48	62,929.96

Note—Indian Refining Co. also reported other receipts of 325,551.33 bbls. Paragon Refining Co. had other receipts of 90,884.01 bbls. Paragon Deelopment Co. had other receipts of 4,615.28 bbls. Pittsburgh Pipe Line had other receipts of 2,763.37 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for August and September.

	Aug., '24	Sept., '24
Nat. Transit	271,259.10	326,398.90
S. W. Pa. P. L.	251,743.43	314,914.21
Eureka P. L.	213,589.82	164,748.30
Buckeye P. L. (Macksburg)	204,539.95	88,058.06
Buckeye P. L. (Cleveland)	975.11	1,214.51
Buckeye P. L. (Lima, etc.)	652,140.37	532,150.99
Indiana P. L.	775,599.54	750,599.95
Cumberland P. L.	178,694.99	133,518.69
Southern P. L.	.....	.....
Crescent P. L.	5,925.24	.....
N. Y. Transit	354,470.00	437,758.87
Northern P. L.	102,861.64	125,166.94
Tidewater P. L.	83,514.81	125,057.78
Pure Oil P. L.	189,388.30	229,439.68
Emery P. L.	44,128.24	41,884.28
Paragon Ref.	96,765.40	68,348.08
Indian Ref.	356,300.95	433,576.20
Paragon Dev.	23,117.96	36,936.44
Pittsburgh P. L.	11,702.21	10,978.98
Total	3,816,717.09	3,819,750.86
Daily average	123,119.90	127,325.03

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of August and September were as follows:

	Aug., '24	Sept., '24
Nat. Transit	868,774.55	961,508.69
S. W. Pa. P. L.	704,080.51	724,341.53
Eureka P. L.	1,724,768.60	1,697,079.59
Buckeye P. L. (Macksburg)	307,678.96	352,911.42
Buckeye P. L. (Cleveland)	41,396.68	46,294.83
Buckeye P. L. Indiana P. L.	639,240.14	679,016.62
Cumberland P. L.	609,383.44	605,423.66
Southern P. L.	606,326.30	630,608.67
Crescent P. L.	58,570.05	58,433.71
N. Y. Transit	934,491.17	763,797.71
Northern P. L.	731,182.89	914,613.78
Tidewater P. L.	.....	.....
Pure Oil P. L.	372,139.83	328,576.77
Emery P. L.	6,883.96	6,003.80
Paragon Ref.	163,900.12	79,036.93
Indiana Ref.	188,296.83	168,875.27
Paragon Dev.	12,196.03	10,287.89
Pittsburgh P. L.	5,137.24	4,047.30
Total	12,221,675.55	12,206,835.87
Increase	159,314.23	.....
Decrease	.....	14,839.68

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern pipe lines at the close of August and September, showing the gross stocks of the above fields:

	Aug., '24	Sept., '24
Pennsylvania	3,501,370.36	3,707,179.82
Lima	1,255,030.74	1,317,819.86
Kentucky	1,471,375.42	1,522,433.32
Mid-Continent	5,866,141.67	5,592,672.05
Illinois	127,757.36	66,730.82
Total	12,221,675.55	12,206,835.87
(Lima, etc.)	4,247,229.25	4,175,978.70

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1921	1922	1923	1924
January	64,460	67,702	75,790	62,533
February	70,054	75,096	72,093	68,023
March	68,555	78,531	76,592	68,721
April	65,036	75,462	75,614	71,058
May	65,466	77,592	77,365	63,942
June	62,438	76,193	77,593	68,230
July	59,486	76,435	71,879	64,208
August	64,888	79,387	76,910	59,942
September	60,110	78,512	72,358	62,930
October	57,688	77,209	76,256	.....
November	58,470	75,313	70,762	.....
December	61,000	73,351	60,271	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for past four years:

	1921	1922	1923	1924
January	115,550	119,792	171,067	146,512
February	96,736	111,362	164,219	148,732
March	84,168	127,753	185,487	147,093
April	101,015	127,068	170,751	147,611
May	100,253	127,840	177,102	134,997
June	105,037	137,638	173,598	143,010
July	97,096	137,872	168,330	124,187
August	101,662	153,275	142,766	123,120
September	117,440	153,761	137,266	127,225
October	105,728	165,345	134,597	.....
November	121,803	165,677	131,426	.....
December	104,023	172,861	129,909	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields including oil received from other lines, at the close of each month for the past three years:

	1922	1923	1924
January	16,297,858	14,040,567	12,907,302
February	17,009,203	14,028,437	11,844,660
March	16,877,937	13,873,146	10,966,732
April	16,777,842	13,737,575	10,922,742
May	16,948,962	13,815,622	11,325,326
June	16,810,169	14,641,252	11,544,304
July	16,660,286	14,645,584	12,062,301
August	16,235,229	14,770,539	12,221,675
September	16,228,545	14,803,444	12,206,836
October	15,767,746	14,504,111	.....
November	15,171,972	14,157,726	.....
December	14,323,765	13,444,361	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and has counted in the stocks and averages reported above:

1922—	Receipts	Shipments	Stocks
August	3,199.07	3,769.34	32,674.98
September	2,829.79	5,822.38	19,682.37
October	2,694.23	5,251.81	17,124.79
November	2,980.66	4,150.98	16,154.47
December	2,893.07	3,499.37	15,548.17
1924—			
January	2,942.19	3,641.71	7,348.76
February	2,151.78	1,924.55	10,071.91
March	3,398.78	1,716.28	11,756.42
April	3,311.84	2,066.78	13,001.54
May	3,036.50	5,338.21	10,699.83
June	3,188.31	407.01	12,481.13
July	3,067.74	3,334.29	12,214.58
August	2,901.36	6.31	15,109.72

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Oct. 1	2,231,30.72
Runs from wells	635,573.73
Other receipts	150,271.35
Regular deliveries	561,421.04
Other deliveries	383,623.23

The amount of Illinois oil run by the Tidewater Pipe Line Co. in September was 902.64 bbls., and deliveries were 14,339.78 bbls. Adding these figures to those of the Illinois Pipe Line Co., makes the runs and deliveries from the Illinois Field as follows:

1923—	Runs	Deliveries
September	542,561.59	396,325.40
October	576,867.09	347,812.12
November	546,859.43	386,612.09
December	534,185.94	392,643.61
1924—		
January	493,337.35	380,780.02
February	535,490.70	353,613.14
March	611,289.36	369,543.51
April	514,356.43	339,546.10
May	751,080.44	510,414.42
June	725,060.37	528,463.38
July	759,646.84	552,396.91
August	720,457.72	519,315.75
September	714,875.36	535,762.99

The Tidewater Pipe Co., Ltd., also delivered in September 118,940.60 bbls. of Oklahoma oil. The total deliveries of all grades by the Tidewater were 278,338.14 bbls.

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Av. bbls. per wk.—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	
May	42,903	33,194	615,709	92,706	61,642	846,154	.....	70,127	.....	.....	70,127	916,281
June	121,800	34,300	581,000	103,369	51,331	891,800	.....	.....	.....	.....	.....	891,800
July	37,710	16,129	473,516	84,452	42,452	654,249	.....	16,936	.....	.....	.....	671,185
August	114,032	33,419	654,387	71,806	33,871	907,515	907,515	.....	6,774	.....	.....	914,289

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Av. bbls. per wk.—	ATLANTIC PORTS						GULF COAST PORTS					Total All Ports
	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	
March	148,368	141,806	283,468	124,642	292,642	990,906	463,806	366,358	323,552	55,545	1,108,261	2,099,167
April	152,369	154,931	213,900	94,962	248,969	971,131	382,900	348,131	119,000	15,869	865,900	1,837,031
May	156,485	134,602	288,903	59,613	300,097	939,699	315,679	296,358	199,591	38,164	848,792	1,788,491
June	120,169	108,731	434,931	68,131	239,400	971,362	412,741	261,762	159,831	33,831	868,165	1,839,527
July	62,097	81,291	445,067	38,418	277,970	904,843	320,194	273,455	130,739	24,978	759,361	1,666,204
August	80,839	57,355	247,710	98,903	207,065	691,872	370,549	238,677	115,839	14,677	739,742	1,431,614

GROSS PRODUCTION AND DAILY AVERAGE IN THE UNITED STATES FOR 12 MONTHS

1923—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Wyoming-Montana	Other Fields	Total
October:	Month	24,576,400	12,961,782	15 932,383	2,336,346	3,120,274	1,837,990	3,640,880	3,475,913	67,782,988
	Daily average	792,787	418,122	513,980	75,366	100,654	59,290	114,323	112,126	2,186,631
November:	Month	22,397,848	12,334,620	15,556,507	2,268,840	2,973,000	1,816,860	4,792,466	3,138,464	65,278,606
	Daily average	746,595	411,154	518,550	75,628	99,100	60,562	159,782	104,615	2,175,953
December:	Month	21,899,247	12,232,259	10,065,856	2,345,150	4,017,850	1,919,574	4,304,326	3,147,813	59,932,071
	Daily average	706,427	394,589	324,705	75,650	129,608	61,922	106,591	101,542	1,901,004
1924—										
January:	Month	20,912,500	12,292,833	10,336,643	2,233,878	3,686,680	1,601,175	4,636,238	2,950,500	58,648,489
	Daily average	674,597	396,543	333,449	71,738	118,925	51,651	149,556	95,177	1,891,657
February:	Month	19,341,226	12,236,637	10,495,486	2,112,853	3,302,750	1,497,450	4,168,450	2,997,700	56,152,553
	Daily average	666,939	421,953	361,913	72,857	113,888	51,629	143,740	103,369	1,936,294
March:	Month	19,913,262	13,336,851	13,077,617	2,206,425	3,882,695	1,701,593	3,993,890	3,268,000	60,370,233
	Daily average	642,363	430,221	389,601	71,175	125,248	54,890	128,835	105,097	1,947,427
April:	Month	19,299,849	13,452,240	11,725,830	2,265,090	4,068,225	1,495,582	3,901,755	3,231,000	59,439,571
	Daily average	643,328	448,408	390,861	75,503	135,608	49,853	130,058	107,700	1,981,319
May:	Month	19,833,576	14,248,057	11,923,316	2,486,696	4,659,117	1,696,791	4,033,564	3,365,000	62,136,417
	Daily average	639,793	459,615	384,623	80,216	150,291	51,507	130,109	108,226	2,004,403
June:	Month	18,807,999	14,457,390	11,515,020	2,473,320	4,756,443	1,811,880	3,798,634	3,211,500	60,332,186
	Daily average	626,933	481,913	383,834	82,444	158,548	60,419	126,621	107,050	2,027,730
July:	Month	19,274,755	15,191,860	11,830,869	2,678,834	4,598,160	1,931,641	3,728,536	3,287,990	62,612,654
	Daily average	621,766	490,058	381,319	86,414	148,321	62,311	120,275	109,290	2,019,796
August:	Month	19,112,998	16,572,104	11,805,753	2,717,398	4,400,116	1,898,246	3,816,627	3,280,017	63,603,309
	Daily average	616,548	534,584	380,831	87,658	141,810	61,234	123,117	105,807	2,051,719
September:	Month	18,308,233	16,299,030	10,670,640	2,688,690	4,022,025	1,811,935	3,427,455	3,305,700	60,533,708
	Daily average	610,274	543,301	355,688	89,623	134,068	60,996	114,249	110,190	2,017,790
	Total 12 months	243,677,893	165,615,663	143,926,940	28,803,512	47,487,335	20,920,677	47,142,802	38,729,596	736,514,418
	Daily average	665,789	452,502	393,243	78,698	129,747	57,160	128,805	105,846	2,011,783

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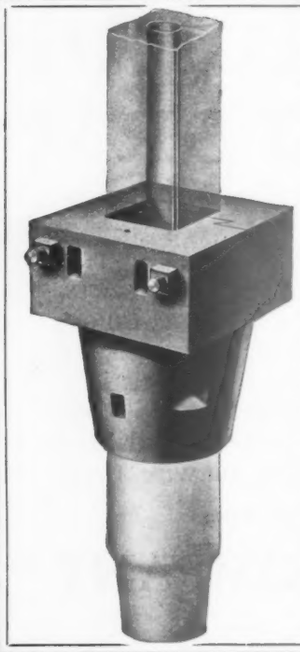
Here is something *new:* a lightweight, easy-to-handle, never-failing tong that has been specially designed and constructed for tubing service. Modeled along the lines of the big Wilson Tongs, and having the "sure-grip" spring-latch feature which puts *all* Wilson Tongs in a class of their own, these brand new Tubing Tongs are making a decided hit with every hard-on-the-job worker! They are husky, yet they are *light in weight.* They are efficient because they never slip or crush. They are production speeders because they save time! 2″, 2½″, 3″ sizes.

Here Is a Brand New Wilson Product You Should Get Acquainted With Immediately!!!



..... ready for quick delivery--- Wilson Rotary-Drive Bushings

Here are the bushings that eliminate all danger of being lost in the hole. Wilson Rotary-Drive Bushings are made with dovetail engagement, made doubly solid by bolting. Being tightly bolted the battering of steel and bushing is reduced while the life of both is materially increased. Don't waste time and money fishing for split bushings—Get Wilson's.

It has taken months of experimental work to finally design and perfect Wilson Tubing Tongs but our skilled engineers stuck to the job—and *now* the result of their endeavor is ready for you. No longer is it necessary for you to use old-fashioned, time-consuming methods. Write today for complete information.

Wilson & Willard Mfg. Co.
MANUFACTURERS
It's a Wilson
Distributed By WILSON OIL TOOLS CORPORATION

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409 Atlas Life Bldg.

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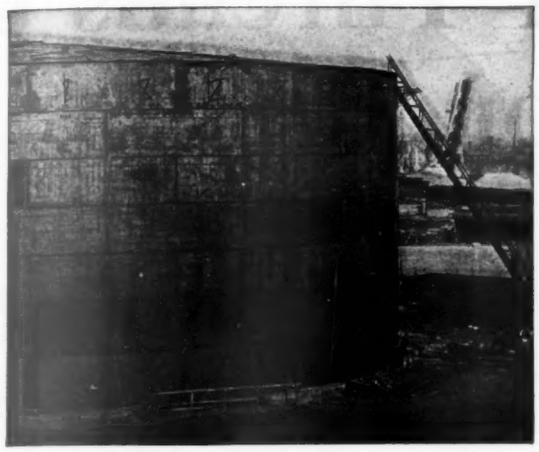
Ft. Worth, Texas,
704 Van Wagoner Bldg.

New York, 141 Broadway, Room 1310

Oil Journal issued weekly by The Petroleum Publishing Company, 114-116 West Second Street, Tulsa, Oklahoma. Subscription price $5.00 a year; 15 cents a copy.

Four million gallons of food for flivvers



This enormous storage tank at River Rouge, Michigan, can hold enough gasoline to drive 3,000 flivvers from the Atlantic to the Pacific and back again, four times. Yet, while acting as a reservoir of food for motor cars, this steel tank can itself be converted into food—for rust.

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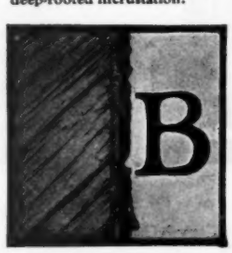
Over and over again pure red-lead paint coverings prove their value in completely protecting all iron and steel oil equipment from corrosion and deterioration. Complete protection means more than coating metal with red-lead when you first put it into service. It calls for regular repainting afterward so that an unbroken film of paint is always between the metal and air and moisture. When you give metal such complete paint protection, you not only prolong the life of your equipment indefinitely, but you can also maintain your tanks and other oil equipment at a minimum cost per year.

"A"—WITHOUT RED-LEAD. The microscope shows what rust does to unprotected metal surfaces in a comparatively short time. Note the deep-rooted incrustation.



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DUTCH BOY RED-LEAD

Oil tank owners find that Dutch Boy red-lead gives the metal in their tanks full and lasting protection against rust. The outside of the huge tank shown above is now covered with a protective coating of Dutch Boy red-lead, which was used because it is *pure* red-lead.

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Dutch Boy red-lead spreads evenly under the brush. It gives to all metal surfaces a smooth protective paint covering of uniform thickness. It is easy to apply and has unusual spreading power.

You can get Dutch Boy red-lead in paste form and also as a liquid ready for application. The *liquid* comes in the natural red-lead color for coats next to steel and also in light and dark green, light and dark brown and black for finishing coats. The *paste* comes in the natural color and can be shaded to browns, greens, black, etc.

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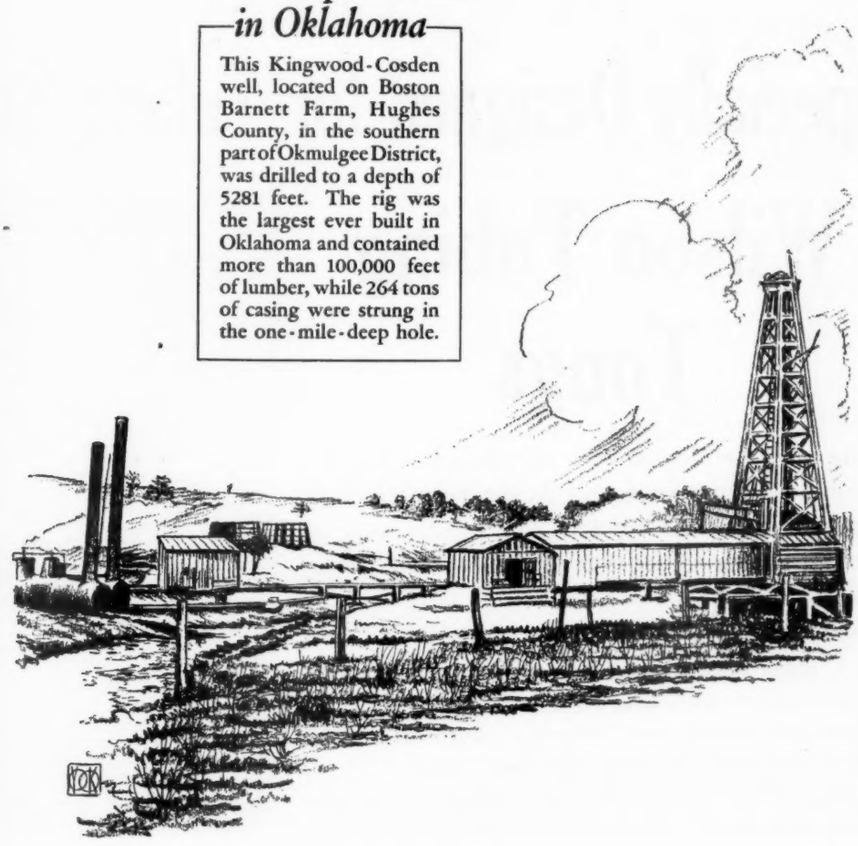
NATIONAL LEAD COMPANY

New York, 111 Broadway; Boston, 131 State Street; Buffalo, 116 Oak Street; Chicago, 900 West 18th Street; Cincinnati, 659 Freeman Avenue; Cleveland, 820 West Superior Avenue; St. Louis, 722 Chestnut Street; San Francisco, 485 California Street; Pittsburgh, National Lead & Oil Co. of Penna., 316 Fourth Avenue; Philadelphia, John T. Lewis & Bros. Co., 437 Chestnut Street.

The Deepest Well in Oklahoma

This Kingwood-Cosden well, located on Boston Barnett Farm, Hughes County, in the southern part of Okmulgee District, was drilled to a depth of 5281 feet. The rig was the largest ever built in Oklahoma and contained more than 100,000 feet of lumber, while 264 tons of casing were strung in the one-mile-deep hole.



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Judge Crescent Wire Rope by the company it keeps. You will find it where you find the most experienced drillers. They consider "Crescent" the one best bet for a sure, quick, uninterrupted job. It has that don't-quit-until-you-get-there tenacity, that rugged yet elastic strength, and that friction-resisting toughness...If you want to experience "that grand and glorious feeling" at the end of a perfect drilling job, be sure to use "Crescent"—the utmost in wire rope.

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Specially Designed for Tubing Service----

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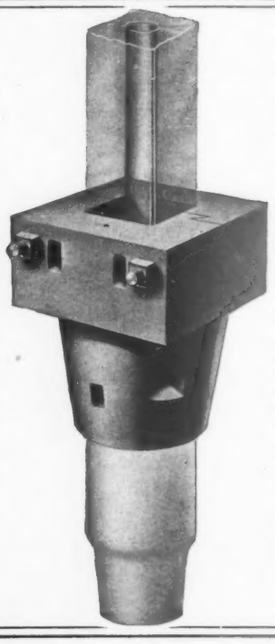

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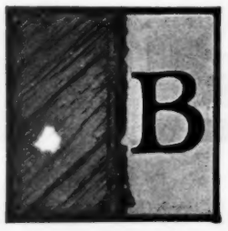

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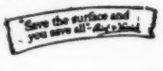

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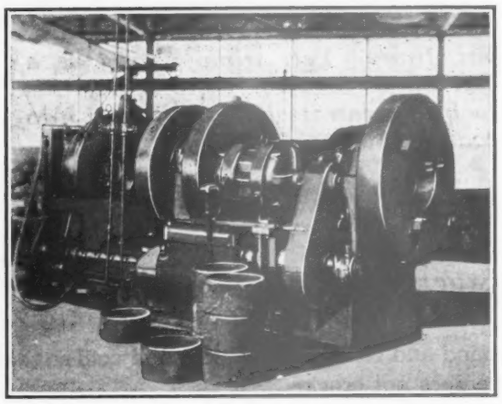
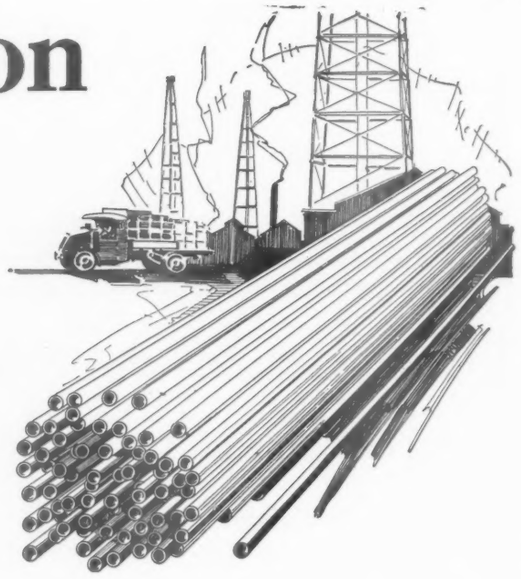
The Value of Threads to Transportation





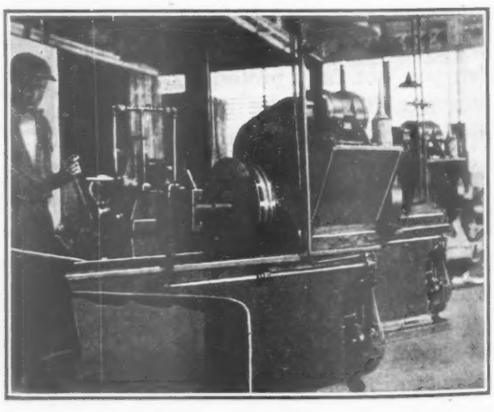
FROM the time the drill breaks ground under the oil derrick until the gasoline is run into the tanks at the service station, piping is the chief factor in the processing of crude petroleum to "gas."

And good threads put the value into piping.

The Gulf Refining Company, of Port Arthur, Texas, employ six LANDIS Pipe Threading Machines to insure the output of their pipe shops. The battery consists of two 2-in., one 4-in., one 8-in. and two 12-in. units.

These LANDIS Machines have no difficulty in supplying the miles of varied piping that makes for economical transportation via "That Good Gulf Gasoline." LANDIS Pipe Threading Machines are used the world over; they cut clean, true threads with minimum regrinding; and can be hard driven when production is important.

Isn't it good policy to take a leaf from the success book of the big producers?



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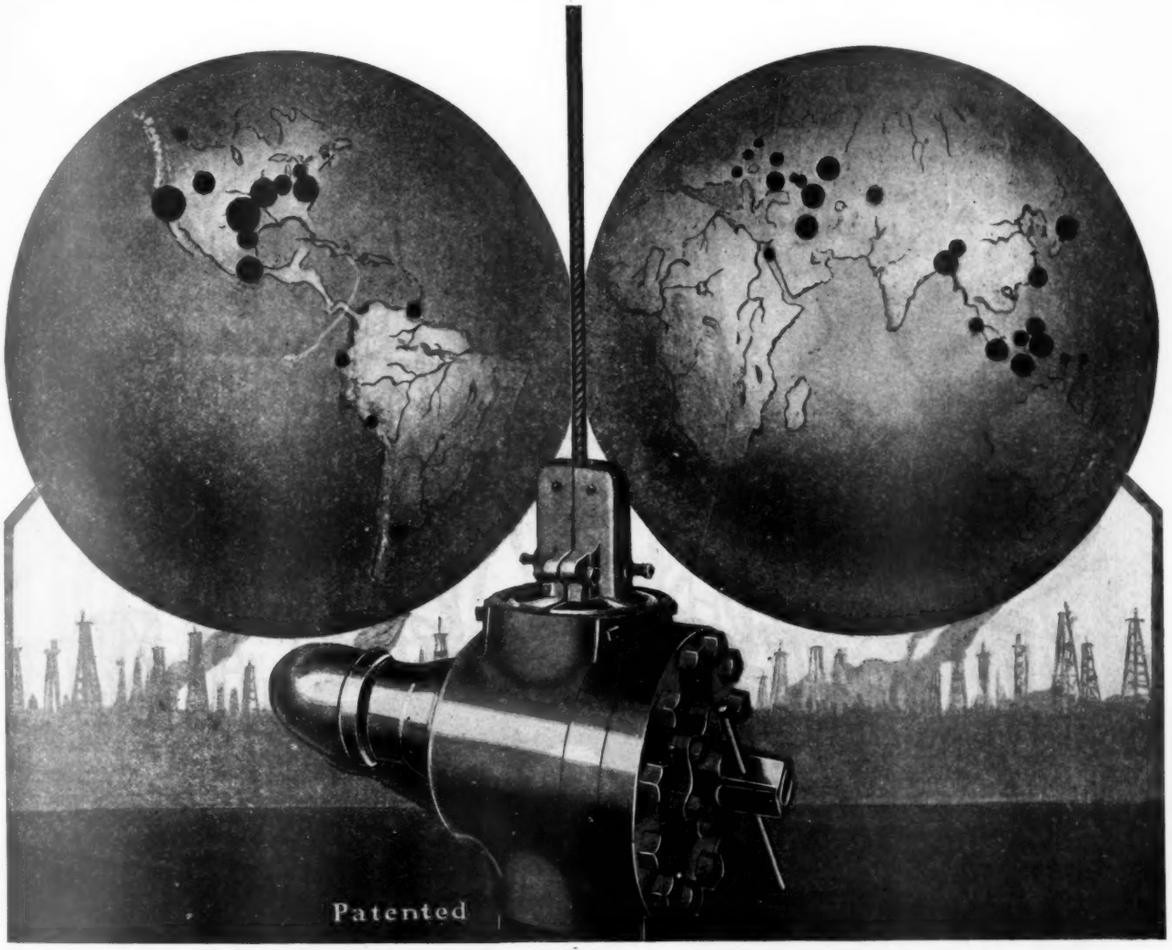

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Control Casing Heads are found in the Oil Fields of the World, assuring everywhere safety, speed and convenience. They control any flow of oil or gas in wells instantly. Only four parts in actual control head. Nothing to get out of order. Not bothered by sand. Does not put back pressure on any flowing well. With Roller Oil Saver in place (as shown above) there can be no loss of oil or danger of fire from escaping gas. Permits all drilling operations. Made of Semi-Steel in sizes adaptable to all working conditions.

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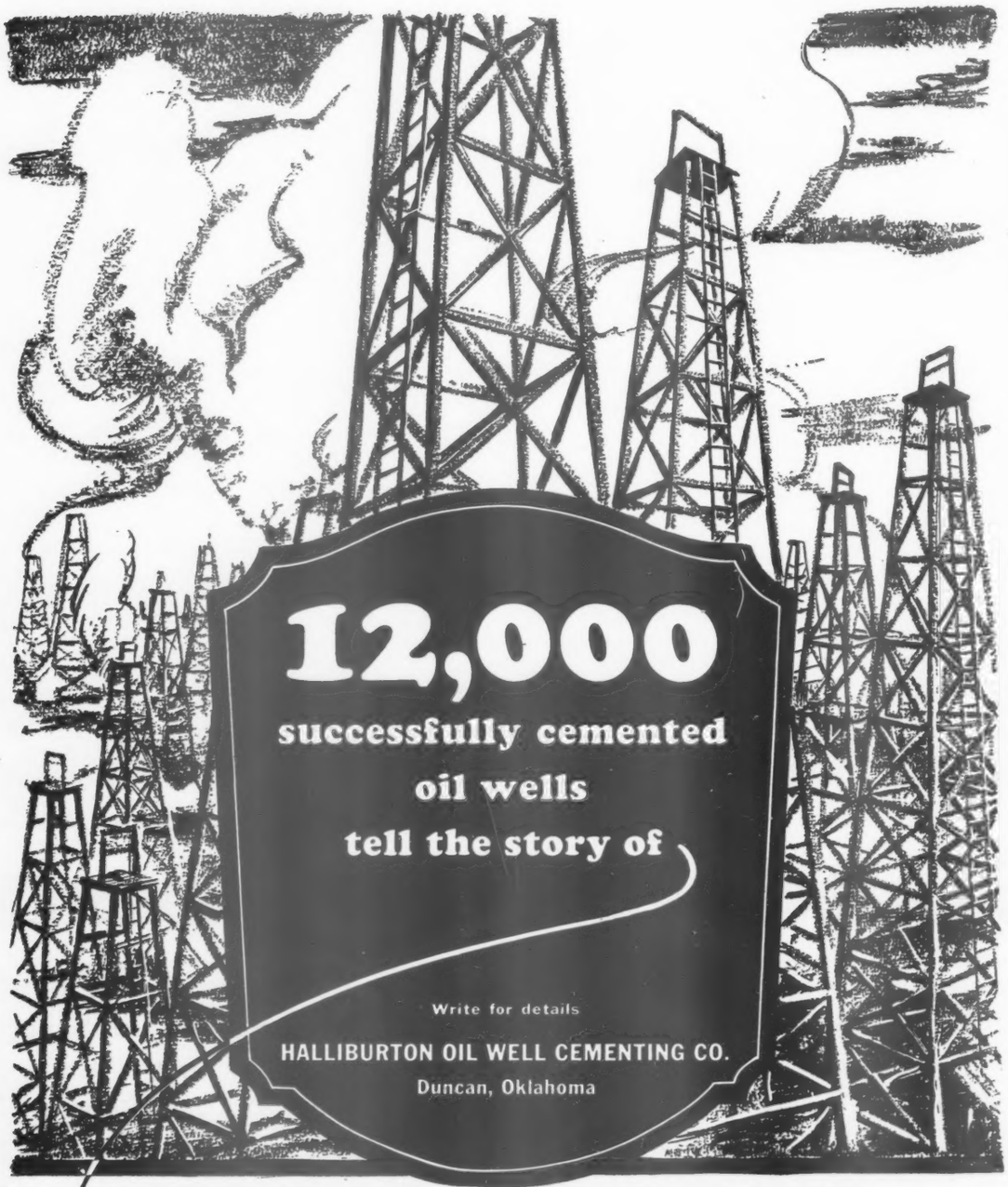

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Forge & Engineering Co.

Manufacturers of Oil Well Equipment

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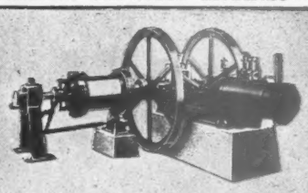
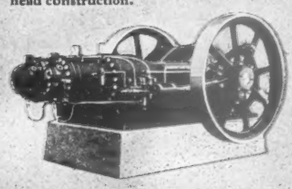
San Pedro, California U·S·A.

BEST BESSEMER

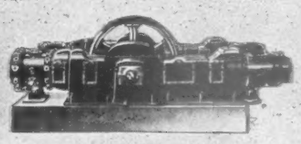
BESSEMER OIL FIELD ENGINES — COMPRESSORS VACUUM PUMPS — ROLLER PUMPING POWERS



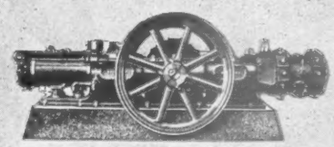
The Bessemer Oil Field Engine
Famous in oil territory the world over. The original two cycle engine with cross-head construction.



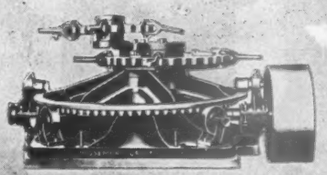
Bessemer Type IV Oil Engine
A dependable engine of trouble-free performance, which operates on inexpensive fuel oil.



The Bessemer Type Ten Compressor
This is the newest Bessemer unit, combining engine and compressor in one unit and incorporating numerous refinements.



The Bessemer Type VIII B Direct Driven Compressor
Standard equipment in the Gasoline-from-Gas Industry. The most efficient and economical means of gas or air compression.



Bessemer Roller Pumping Power
A compact pumping unit which keeps rods close to ground. Master wheel kept level by six rollers.

A synonym for the Best for a Quarter Century

From the first gas engine in 1898 to the Type Ten compressor in 1923, Bessemer leadership in the Oil Field has been an undisputed fact.

Machinery to meet every oil field need has been developed and perfected in the Bessemer plant and built to maintain the Bessemer ideal—*that every product shall be the Best in its line.*

Today the Bessemer trademark on oil field equipment, compressors, gas engines, oil engines, pumps and pumping powers, is your guarantee of unexcelled design, sturdy construction and world-wide service.

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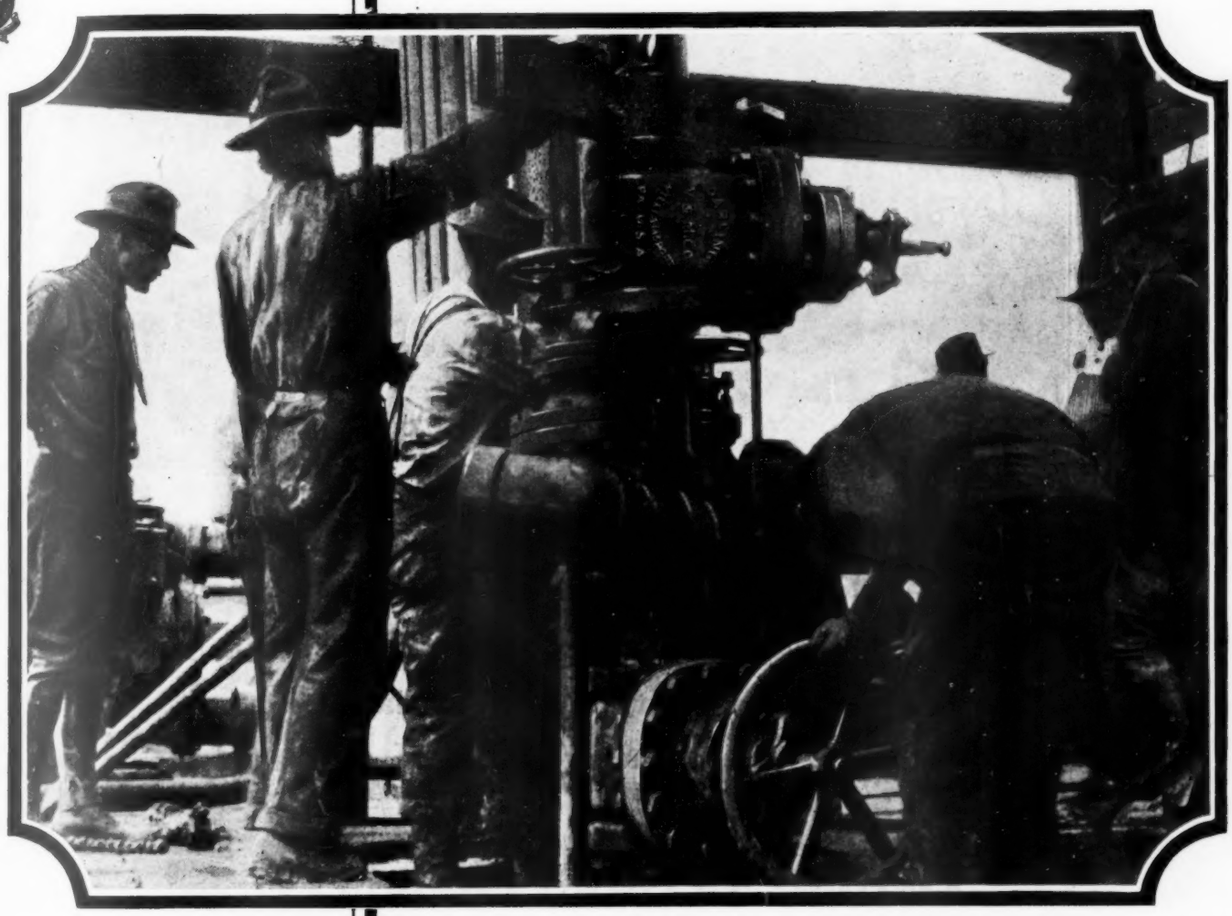

Once Is A-Plenty!

When the Gate Valves on a big flowing well fail to operate satisfactorily, it's generally enough to cure an operator from ever trusting any valve but a Darling.

The action of a Darling Gate Valve is quick and positive. The wedges unlock before the discs start to move up. Even with pressure sufficient to take off a man's arm like a knife, the rotating discs will seat clean and sure for there are no pockets or recesses to catch scale or dirt—preventing wedges from functioning and the discs from centering squarely in front of the ports.

The wedge action does not take place until the discs are lowered directly in front of the ports, thereupon one turn of the stem causes the wedges to force the discs home.

By equipping throughout with Darling Gate Valves, oil operators from coast to coast have satisfied themselves that Darlings mean positive control.

All parts are perfectly plain and free from pockets where scale and sediment collect. The ground faces of the rotating discs seat tight and clean in a new position with every closing. All parts are interchangeable and either end works equally well against the pressure.

There is a Darling Valve for every phase of oil operation, and every Darling is tested to double its required working pressure before leaving the Darling plant.

Our catalogs and diagrams are complete. Ask for one!

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Frick-Reid Supply Co. Atlas Supply Co.
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DARLING
GATE VALVES

Preparing for a gusher, well No. 2 on reclaimed area of the Bibi-Eibat Sound.

All-Russian Oil Syndicate

Oil Fields in Bakou (Azneft), Grosnii (Grosneft), Emba (Embaneft.)

Sells Best Quality and any Quantity of:

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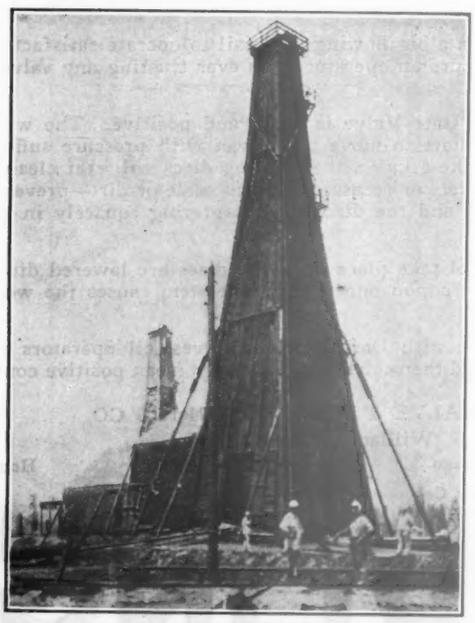
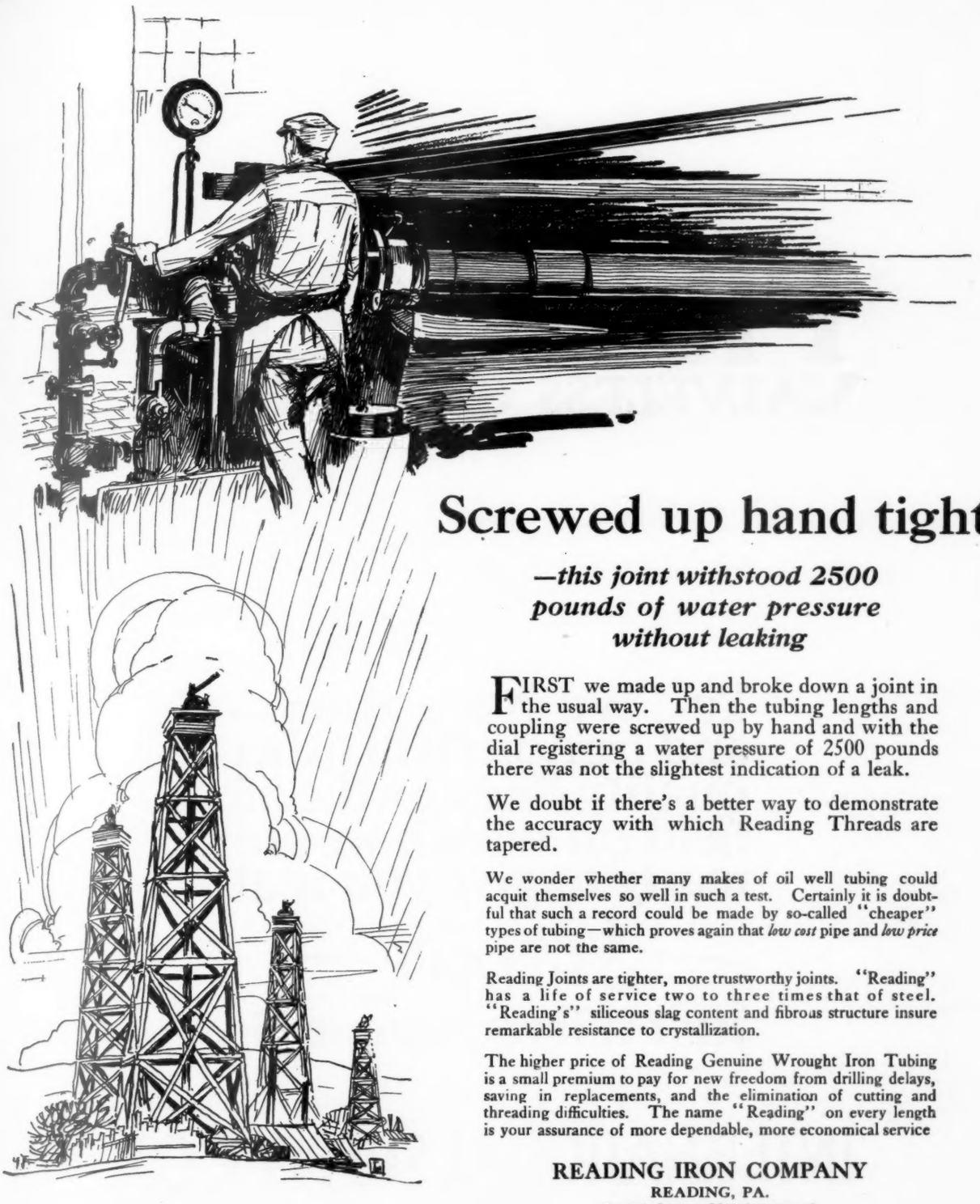


Gusher No. 23 on reclaimed area of the Bibi-Eibat Sound.

Sliding in a control block to divert the gusher to open storage. Well No. 67, Sourachani Oil Field.



Screwed up hand tight

—this joint withstood 2500 pounds of water pressure without leaking

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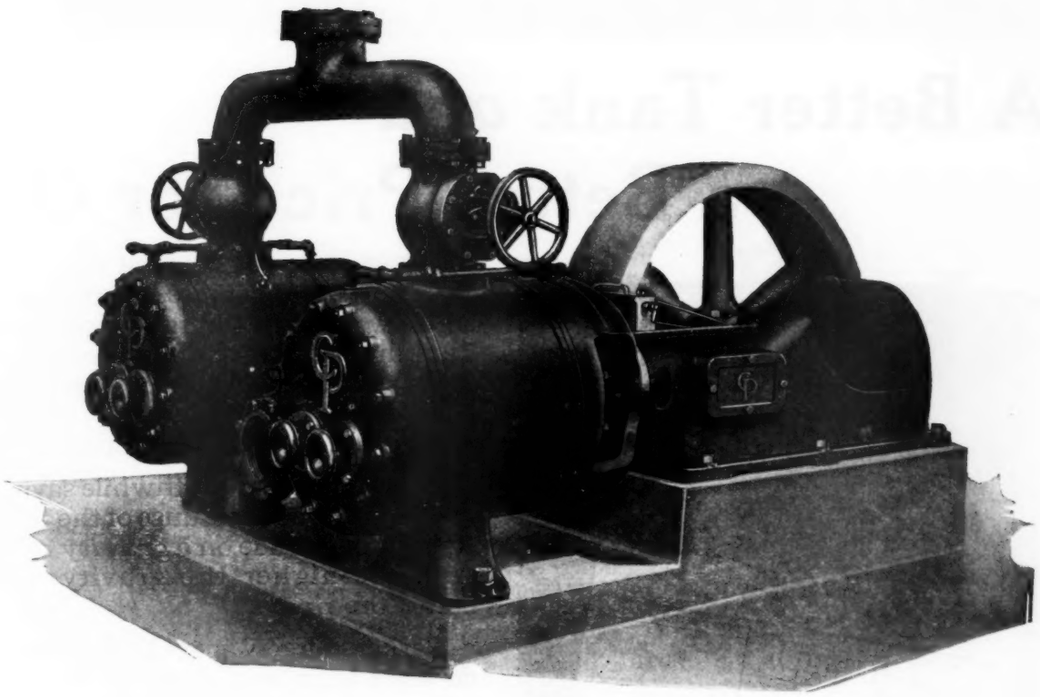

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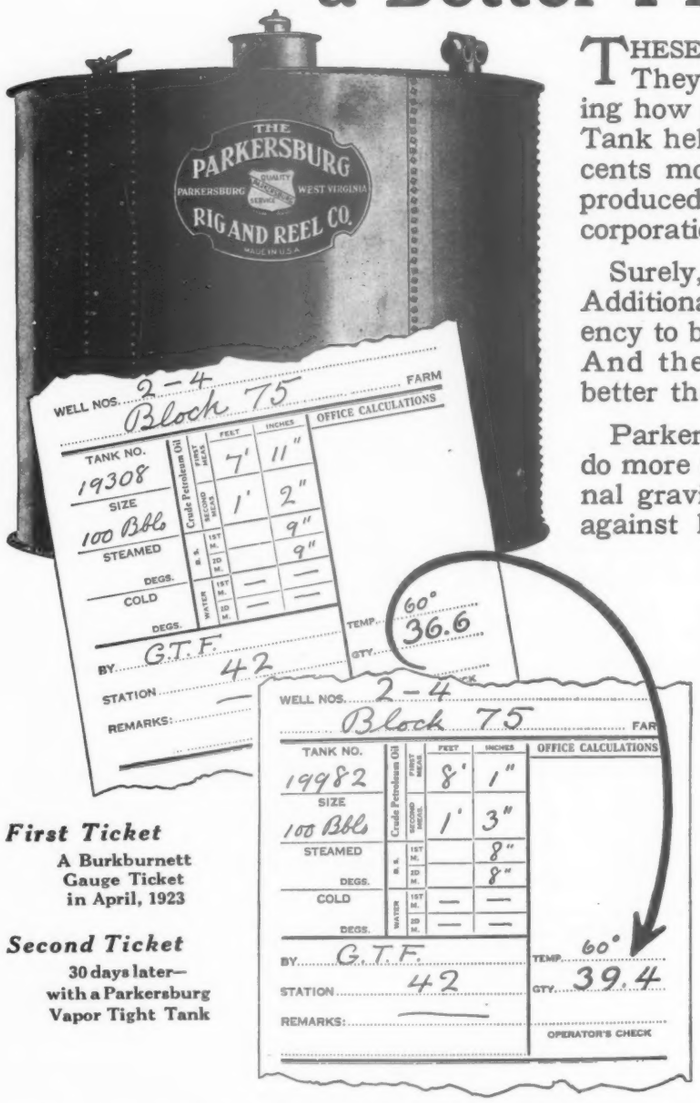

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